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Bulletin of the University of New Hampshire

Announcements 1951 - 1952

DECEMBER 1950

VOL. XLII DECEMBER 1950 No. 4

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THE UNIVERSITY BULLETIN INCLUDES:

The Catalogue Issue of the University
The Report of the President Issue
The Financial Report Issue
The Catalogue Issue of the Summer Session
The Catalogue Issue of the Graduate School
and other publications of the University of New Hampshire

Correspondence in regard to the University should be addressed to the following:

General Information, Secretary of the University

Admission and Catalogue, Director of Admissions

Summer Session, Director of Summer Session

Agricultural and Home Economics Extension, Director of Agriculture and Home Economics Extension Service

Alumni Activities, Alumni Office

University Extension, Director of University Extension Service

Graduate School, Dean of the Graduate School

Two-Year Course in Agriculture, Office of Applied Farming

CALENDAR

1951

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UNIVERSITY OF NEW HAMPSHIRE CALENDAR
1951-52

1951 SUMMER SESSION

July 2	Monday	Summer Session Registration
July 4	Wednesday	Holiday, no classes
July 7	Saturday	Classes meet to make up day lost on July 4
Aug. 10	Friday	Summer Session closes

FIRST SEMESTER 1951

Sept. 18	Tuesday	Orientation Week begins
Sept. 24	Monday	Registration Day
Sept. 25	Tuesday	Classes begin at 8:00 A. M.
Nov. 13	Tuesday	Mid-Semester Reports to be filed, 5:00 P. M.
Nov. 21	Wednesday-	Thanksgiving Recess
Nov. 26	Monday	Wednesday, 12:00 noon to Monday, 8:00 A.M.
Dec. 15	Saturday	Christmas Recess begins at 12:00 noon

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Jan. 3	Thursday	Christmas Recess ends at 8:00 A. M.
Jan. 19	Saturday	Preparation Day, no classes
Jan. 21 Feb. 1	Monday- Friday	Examination Period

SECOND SEMESTER

Feb. 4	Monday	Classes begin at 8:00 A. M.
Feb.	Friday-Saturday	Winter Carnival — no classes Friday, 1:00 P. M. to Monday, 8:00 A. M.
March 11	Tuesday	Town Meeting, classes excused 10:00 A. M. to 1:00 P. M.
March 18	Tuesday	Mid-Semester Reports to be filed, 5:00 P. M.
April 5	Saturday	Spring Recess begins at 12:00 noon
April 15	Tuesday	Spring Recess ends at 8:00 A. M.
May 24	Saturday	Preparation Day, no classes
May 26	Monday	Examinations begin
May 30	Friday	Memorial Day, holiday
June 7	Saturday	Examinations end
June 8	Sunday	Commencement
June 13-15	Friday	Alumni Weekend

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BOARD OF TRUSTEES

His Excellency, Governor Sherman Adams, a.b., ll.d., *ex officio*

Perley I. Fitts, b.s., Commissioner of Agriculture, *ex officio*

President Robert F. Chandler, Jr., ph.d., *ex officio*

Frank W. Randall, b.s., ll.d., President — Portsmouth, N. H.
July 1, 1936 to June 30, 1952

Arthur E. Moreau, a.m., — Manchester, N. H.
September 14, 1944 to June 30, 1951

Laurence F. Whittemore, m.a., ll.d., Vice-President — Pembroke, N. H.
September 14, 1944 to June 30, 1952

Mary S. Brown — Center Sandwich, N. H.
December 20, 1944 to June 30, 1951

Austin I. Hubbard, b.s., Secretary — Walpole, N. H.
December 20, 1944 to June 30, 1953

*Albert S. Baker, b.s., — Concord, N. H.
July 1, 1948 to June 30, 1952

*Anna L. Philbrook, m.d., — Dunbarton, N. H.
July 1, 1949 to June 30, 1951

Ernest W. Christensen, b.s., — Dover, N. H.
July 1, 1949 to June 30, 1953

Maurice F. Devine, ll.b., ll.d., — Manchester, N. H.
July 1, 1950 to June 30, 1954

George L. Frazer — Monroe, N. H.
July 1, 1950 to June 30, 1954

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*Elected by Alumni.

University of New Hampshire

HISTORY

The educational institution, now known as the University of New Hampshire, was established as a college in 1866. At that time, the State of New Hampshire accepted the provisions of the Federal Morrill Act and established the New Hampshire College of Agriculture and Mechanics Arts.

This national legislation, which had been approved by President Lincoln in 1862, provided for an allotment of public lands to each state for instituting such a college. In place of land New Hampshire accepted scrip and, selling this for $80,000, founded the College at Hanover in conjunction with Dartmouth College. For a quarter of a century the institution remained at Hanover with an average enrollment of about 25 students. In 1888, through the Federal Hatch Act, a State Agricultural Experiment Station was also established as a part of the College.

Meanwhile, there lay in a legal adviser's safe in Durham the will, made in 1856, of a farmer, Benjamin Thompson of Durham, bequeathing his entire estate to the people of New Hampshire on condition that the State establish on his land a College of Agriculture. No one had known of his proposed philanthropy. The Thompson estate then amounted in land and securities to $300,000, but this was to lie untouched, at compound interest, for a period of 20 years. When, at last, in 1910, it first became available, it amounted to approximately $800,000.

When the terms of the will became known, in 1890, the Legislature promptly made the necessary enactments to establish the College at Durham. The enthusiastic Senior Class of 1892 journeyed down from Hanover to hold its Commencement Exercises in the College's first new building—a cow barn. As rapidly as possible, the State erected four other buildings, Thompson Hall, Conant Hall, Nesmith Hall, and the College Shops, which were ready for occupancy in 1893 by a group of 64 students, including 10 women.

In 1911, the Trustees authorized the setting up of an Agricultural Extension Service which was further developed later by Federal and State appropriations to make possible headquarters, with County Agricultural Extension Agents in each county of the State.

By 1914, constant expansion of the student body resulted in an administrative division of the College into three groups: Agriculture, Engineering, and Arts and Sciences.

Moved by a devoted alumni body and the more than 1,000 students then enrolled, the General Court, in 1923, renamed the College "The University of New Hampshire," creating within it the three Colleges of Agriculture, Technology, and Liberal Arts. Two years later, it permanently provided for the University's support by granting it an annual income of one mill for each dollar of the assessed valuation of all taxable property in the State. In 1947, the General Court increased this amount to one and one-half mills for each dollar of assessed valuation.

Today, the University comprises the three Colleges and the Agricultural and Engineering Experiment Stations, the University Extension Service, the Extension Service in Agriculture and Home Economics, the Summer Session, the Graduate School, and the Forestry Summer Camp in the White Mountains.

ORGANIZATION

The government of the University of New Hampshire is vested in a Board of Trustees, 13 in number, of which the Governor of the State, the Commissioner of Agriculture, and the President of the University are members *ex officiis.* Two members, one of whom must be a resident of New Hampshire, are elected by the Alumni of the University and eight members are appointed by the Governor of the State.

The University Senate, a representative body elected by and from the Faculty, has legislative jurisdiction in matters of student government and educational policy. Within the Senate is the University Council which acts in an advisory capacity to the President and serves as an Executive Committee between meetings of the Senate. Details of the University organization are given in the current *Staff Handbook of Official Information.*

INSTRUCTION

Resident Instruciton is offered in the College of Agriculture, the College of Technology, the College of Liberal Arts, the Graduate School, the Departments of Physical Education for Men and for Women, and the Department of Military Science and Tactics.

The Summer Session is an integral part of the University program. Prior to 1922, a Summer School in Biology only had been conducted. Courses are now offered in the Summer Session by the three Colleges and the Graduate School to meet the needs of teachers, administrators, and supervisors of elementary and secondary schools; students who seek special professional preparation or are working for undergraduate or graduate degrees; students who anticipate courses or are supplying deficiencies; qualified and mature persons who wish to take courses for general cultural purposes. Qualified instructors are drawn from the University Faculty and are supplemented by specialists selected for their attainments in particular fields at other institutions. The Catalogue of the Summer Session gives specific information as to courses.

In addition to the offerings available at the University in Durham, summer instruction is given in Forestry and Fish and Game Management at the Forestry Summer Camp.

University Degrees — A student in the College of Agriculture or the College of Technology, who is a candidate for a degree, must meet all the requirements of his elected curriculum as set forth in the Catalogue for the year in which he first pursues that curriculum unless the College which has jurisdiction over the curriculum makes changes applicable to all students pursuing it.

In the College of Liberal Arts, a student's candidacy for a degree will be determined by his satisfaction of the university, college, major, or curriculum requirements in force at the time of his admission to the college either as a beginning student or as a transfer. A student may petition to satisfy the university, college, major, or curriculum requirements that may be in force at any time during his residence. Such a student shall be held, however, for all the academic requirements of the Catalogue under which he seeks a degree; not a portion thereof. The new Catalogue becomes effective on July 1 in each year.

The University reserves the right to withdraw any course or curriculum announced in the Catalogue or to substitute other courses or curriculums therefor. A student must also meet such new regulations as may be subsequently adopted by the University and made applicable to him; and he is also held responsible for such other rules and regulations as may be published in the *Official Handbook for Students.*

The following degrees are conferred:

Graduate School — Master of Science, Master of Arts, Master of Education, and Master of Science in Engineering.

College of Agriculture — Bachelor of Science and Bachelor of Science in Agricultural Engineering.

College of Technology — Professional degrees of Mechanical Engineer, Civil Engineer, and Electrical Engineer; Bachelor of Science in Chemistry, Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Physics.

College of Liberal Arts — Bachelor of Arts, Bachelor of Science.

CERTIFICATE — *College of Agriculture* — In the Applied Farming Department, a Certificate of Graduation.

RESERVE OFFICERS TRAINING CORPS — In co-operation with the Federal Government the University maintains a Reserve Officers Training Corps as a part of the Federal system to provide systematic military training for school and college students.

While the Federal Government supervises the training, details officers and non-commissioned officers of the Army and of the Air Force as instructors, and provides the necessary equipment, students undergoing this instruction who are members of the R.O.T.C. are in no way members of the military forces of the Government. They remain civilians and do not incur any additional obligation for Military Service by enrollment in the R.O.T.C. However, under the provisions of the National Selective Service Act of 1948, certain qualifield students may, upon signing a Deferment Agreement, be deferred from induction into the Armed Forces during the period of enrollment in the R.O.T.C. Students formally enrolled in the Advanced Course receive a monetary allowance from the Government, and in return, agree to attend the R.O.T.C. Summer Camp and to complete the course of instruction as a prerequisite to graduation. R.O.T.C. emoluments received are in addition to benefits received through the G.I. Bill of Rights.

Students enrolled in the R.O.T.C. will be furnished with uniforms which are worn during military instruction, when prescribed. A deposit of $15.00 is required of each student having military clothing and equipment in his possession. At the end of the academic year, or upon a student's severing his connections with the University, this deposit will be refunded to him upon the satisfactory return to the University of all military property loaned — except that a reasonable deduction will be made to cover any damage beyond natural wear and tear, or for the loss of any of the equipment. Students enrolled in the Advanced Course may be permitted to keep their uniforms upon successful completion of the Advanced Course.

Instruction offered in the First Year Basic Course is of a general type. Beginning with the second year of the Basic Course (Sophomore), specialized instruction is given in Antiaircraft Artillery, Infantry, or Air Force. Any physically qualified male Junior who completes the Basic Course or who has served a minimum of one year in the Armed Forces may apply for enrollment in the Advanced R.O.T.C. Course in order to qualify for a commission upon graduation. R.O.T.C. students designated as Distinguished Military Students are eligible to apply for direct appointment as commissioned officers in the Regular Army or Air Force upon graduation.

APPLIED FARMING — INSTRUCTION OF LESS THAN COLLEGE GRADE is made available by the University in the Applied Farming Department. The purpose of this Department, organized in the College of Agriculture, is to give the greatest amount of practical training that is possible during a two-year period of time to students who cannot attempt the four-year curriculum. It is directly administered as a separate unit, with its own staff of instructors. Assistance from any of the College departments or personnel in curriculum matters is available. Any high-school graduate of good character, or any student who has completed a minimum of two years of high school and is 18 years of age or over, may be admitted. Two academic years of residence and field training or supervised farm experience during the summer months are required for graduation.

STUDENT PERSONNEL SERVICES

Everett B. Sackett, *Dean of Student Administration;* Ruth J. Woodruff, *Dean of Women;* William A. Medesy, *Dean of Men;* John A. MacDonald, M.D., *Acting University Physician;* Doris Beane, *University Recorder*; Jere A. Chase, *Director of Admissions;* Paul H. McIntire, *Acting Director of Counseling;* Warren C. Bowers, *Psychologist;* Dorothy M. Kohl, *Counselor;* Herbert A. Carroll, *Consulting Clinical Psychologist;* Eugene R. Shippen, Jr., M.D. *Consulting Psychiatrist;* Kathleen R. Beckingham, *Psychometrist*; Donald H. Richards, *Director of Placement;* Phyllis McDonald, *Director, Durham Notch Hall;* Gerard S. Griffen, M.D., *Acting Assistant Physician;* William D. Crandall, M.D., *Acting Assistant Physician;* Harriet B. Nason, *Supervising Nurse.*

University responsibilities for student activities and welfare outside the formal academic organization are co-ordinated through the Dean of Student Administration. The activities in this area include supervision of student health, counseling, living arrangements, employment service, extra-curricular activities, student financing, academic record keeping, maintenance of academic standards, and protection of personal standards of conduct.

THE ADMISSIONS OFFICE — The function of the Admissions Office is to contact prospective college students, to process their applications, to correspond with them, to distribute bulletins and catalogues, and finally, to select students. The Admissions Office is located in Thompson Hall, but a great deal of the contact work takes place in the high schools of the State. The Admissions Office co-operates with the Counseling Service in the operation of the School Testing Service.

THE SCHOOL TESTING SERVICE is a joint enterprise of the Admissions Office and the Counseling Service. Its chief function is to furnish the schools of the State the benefits of the University's trained personnel and testing facilities. The Service offers such programs as the High-School Survey, the Co-operative Guidance Program, as well as rental, scoring, consulting, and other professional technical services to the public schools of New Hampshire. Other programs are arranged to meet the needs of the schools.

THE RECORDER'S OFFICE conducts registration, maintains the academic records, issues grades and transcripts, checks the students' records and advises them of their progress toward graduation, makes up the student directory, Commencement lists, honor rolls and compiles other statistical data. Its services include an information desk and reception center. It is closely allied with the Admissions Office. Veterans' routine contacts with the Veterans' Administration regarding educational benefits are handled through this office.

THE COUNSELING SERVICE, without cost, assists students in discovering vocational abilities and aptitudes, in self-evaluation, and in the development of sound plans and objectives. It furnishes students with occupational and educational information as to requirements and opportunities. Personal counsel and guidance are offered to those students facing problems of emotional and social adjustment. It is the University's official testing agency charged with the administration of large-scale testing programs such as the Graduate Record Examination, the Orientation Week Program, and others of a similar nature. In co-operation with the Admissions Office, the Counseling Service participates in the School Testing Service and is available to all requesting technical information concerning problems of guidance and testing.

THE OFFICE OF THE DEAN OF WOMEN assigns rooms in the Women's Dormitories and supervises the social aspects of women's residences. Approval of the housing of off-campus women students who are not living at home is also a function of this office. It reviews the plans of all social occasions requiring chaperonage and assigns rooms for the evening meetings of student organizations. A current file of the officers and advisers of all student groups is maintained.

In co-operation with the student social committee, the major outlines of the social calendar are drawn up each spring for the succeeding year.

Assistance is given women students in making financial and other plans and in finding employment during the college year.

THE OFFICE OF THE DEAN OF MEN is concerned with the over-all adjustment of men students to University life. Men students should feel free to discuss with the Dean of Men any question or problem which may arise during their college experience. In areas such as personal finance, scholarships, work opportunities, absences, discipline, student government, and the conditions of dormitory and fraternity living the Dean of Men may act directly. In other matters referrals may be made to other members of the University staff.

THE UNIVERSITY HEALTH SERVICE, located in Hood House, is devoted to the protection, improvement, and maintenance of student health. A well-equipped out-patient clinic for diagnosis and treatment of ambulatory patients and a modern hospital of 26 beds, with private and semi-private rooms, wards, and an isolation division for communicable diseases, are constantly available for students who require medical or surgical care Registered nurses are on duty at all times. Individual health guidance is given through personal conferences with the University physicians.

Payment of tuition entitles students to all medical care rendered by the University Physician and his staff. Injury and illness which require hospital confinement other than in Hood House, services of specialists, operations, ambulance service, special nurse, or special prescriptions are at the expense of the student. Bed patients at Hood House are charged $2.00 per day. Office Hours of the University Physician are from 8:00 A.M. to 4:30 P.M. daily except Saturday afternoons and Sundays.

STUDENTS' MEDICAL REIMBURSEMENT INSURANCE. In addition to the health service available through Hood House, group accident and sickness insurance giving 12 months' coverage is available to students at the University. This insurance coverage is designed to supplement the program of the University. Complete details may be had on application to John C. Paige and Company, 40 Broad Street, Boston, Mass.

DURHAM NOTCH HALL serves as a temporary home for the Student Union, pending erection of the permanent memorial union building. It serves as a gathering place for students. Card games and ping-pong are available. The Student Union Board, on which there is student, faculty, and alumni representation, carries on an extensive cultural, social, and service program, paid for by an assessment of 50 cents a semester on each student. A soda fountain operates from early morning until late evenings. Magazines and newspapers are provided.

RELIGIOUS ACTIVITIES — Opportunities are provided in Durham for students to practice religion and to participate in religious life. The Hillel Club, the Newman Club, and the United Protestant Association are the agencies through which the religious interests and life are fostered among the students.

The Durham Community Church welcomes students to its many services of worship, to Sunday evening programs, and to share church activities through student affiliated membership.

The Episcopal Church provides a chaplain for students, and services are held each Sunday.

The parish of St. Thomas More serves the Roman Catholic students and faculty members. Sunday Masses are held at 8:00 A.M. and 11:00 A.M.

THE PLACEMENT BUREAU assists Seniors, Graduate Students, and Alumni to secure positions after graduation. It corresponds with and interviews school superintendents, personnel managers of industrial concerns, and others who employ baccalaureate and advanced degree students, calling to their attention Seniors, Graduate Students, and Alumni who are seeking positions. The Placement Bureau and the Counseling Service are closely allied.

STUDENT GOVERNMENT

THE STUDENT COUNCIL is an organization of men students which serves as a liaison body between the University Administration and the students, and as a representative group seeking to promote the best interests of the University. Members of the Council, except those who are members *ex officiis*, are elected by ballot each spring.

THE ASSOCIATION OF WOMEN STUDENTS promotes responsibility in maintaining high standards of personal conduct and encourages active co-operation in self-government. All women students are members of the Association.

ASSOCIATED STUDENT ORGANIZATIONS provides a central administration of business affairs for member organization. A board of three faculty members and five students approves budgets of member organizations, recommends the amount of the Student Activities assessment, and sets standards for and supervises the financial activities of member organizations.

THE ALUMNI ASSOCIATION

Upon leaving the institution, all students of the University automatically become members of the University of New Hampshire Alumni Association. The present membership of the Association exceeds 15,000 men and women who represent New Hampshire College and University of New Hampshire classes from 1881 to 1950. Alumni reside in every state of the Union as well as in many foreign countries.

Governed by a Board of Directors of 12 elected members, the Alumni are organized by classes and clubs. Class reunions are held annually in June both in Durham and in adjacent communities. An annual Homecoming Day in the fall provides opportunity for Alumni to return to Durham while college is in session. A football game with a traditional rival and a reunion with former classmates and friends are the outstanding features of Homecoming Day. Other Alumni gatherings on Campus are also scheduled from time to time during the academic year. Every year 40 UNH Alumni clubs throughout the United States hold from one to six meetings each. The Clubs' annual meetings are held simultaneously as a Founder's Day occasion on "Ben

UNH features winter sports. The Winter Carnival is a major annual event.

Thompson's Birthday," April 22. A monthly magazine, *The New Hampshire Alumnus*, issued ten times a year, circulates news of students, Faculty, Alumni, and the University to Association subscribers. From Alumni Offices in Thompson Hall the Association's activities are directed by a permanent Alumni Secretary.

The officers of the University of New Hampshire Alumni Association are: Thomas L. Snow '24, president; Robert H. Sawyer '18, first vice-president; Mary-Louise Hancock '42, second vice-president; William L. Prince '30, secretary-treasurer and Alumni Secretary. The directors are William T. Call '13, Ralph A. Lizio '28, Dean P. Williamson '32, Bradford S. Boothby '32, Charles S. Joslin '36, Richard F. Nellson '40, Mrs. Alice Weber Ayer '45, Mrs. Selma Bacon Simon '42, and Mrs. Laura Hamm Winn '46. Two Alumni Trustees, elected by the Association, to the University Board of Trustees, are Dr. Anna L. Philbrook '28, and Albert S. Baker '21.

STUDENT ORGANIZATIONS

ACADEMIC, HONORARY, PROFESSIONAL AND DEPARTMENTAL SOCIETIES, AND INTEREST GROUPS

ALPHA CHI SIGMA, Professional Chemistry

ALPHA EPSILON DELTA, National, Honorary, Pre-Medical

ALPHA KAPPA DELTA, National, Honorary, Sociology

ALPHA PHI OMEGA (Scout Service Fraternity)

ALPHA ZETA, National, Honorary, Agriculture

AMERICAN GUILD OF ORGANISTS, Guild Student Group, University of New Hampshire

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS

AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS, Student Chapter

AMERICAN SOCIETY OF CIVIL ENGINEERS, Student Chapter

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Student Chapter

ANIMAL INDUSTRY CLUB

APPLIED FARMING ORGANIZATION

ASSOCIATION OF WOMEN DAY STUDENTS

THE CHESS CLUB

CHI MU, Women Majors in Chemistry

COLLEGE CHEST

THE DUPLICATE BRIDGE CLUB

ENSEMBLE, Groups of instrumentalists and vocalists

FOLIO, a society composed of students interested in the reading and discussion of contemporary literature.

THE FRENCH CLUB (Cercle Francais)

THE GLEE CLUB has two organizations, one for men and one for women. Membership is open to undergraduates interested in choral singing who fulfill try-out requirements. The club presents several public programs a year.

THE GERMAN CLUB

THE GRADUATE SCIENCE SOCIETY, Graduate Students and Faculty members engaged in research in the Sciences.

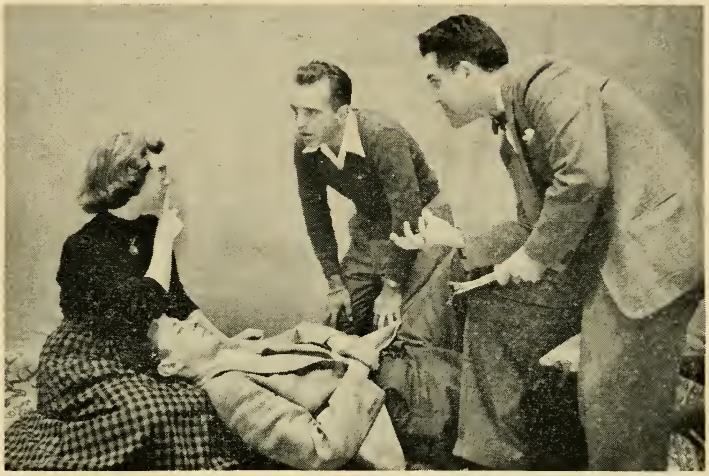
HOME ECONOMICS CLUB

THE HORTICULTURE CLUB for students interested in Horticulture

THE INTERFRATERNITY COUNCIL, composed of fraternity representatives regulating Campus interfraternity relations.

THE INTER-DORMITORY COUNCIL, representatives of the men's dormitories.

THE INTERNATIONAL RELATIONS CLUB is one of over 450 chapters, throughout the world, that is assisted by the Carnegie Endowment for International Peace.



Rehearsal for Mask and Dagger production of "High Tor".

Members of the Modern Dance Club in a folk number. "Cockles and Mussels."

JUNIORS GREETERS OF AMERICA — Chapter No. 1 of this countrywide organization sponsored by hotel executives is operated by the students of Hotel Administration. Membership on this Campus makes automatic the acceptance of the graduate in the parent organization, International Greeters, a very definite start toward success in the hotel industry.

KAPPA DELTA PI, Honorary, Education

LAMBDA PI, Language

THE LENS AND SHUTTER CLUB, organized for group study and enjoyment of photography.

LIBERAL CLUB

MASK AND DAGGER is a dramatic society which promotes interest and participation in dramatics on Campus. It assists in the production of one-act and three-act plays each year. Its members are chosen from those who actively participate in the various phases of play production.

MIKE AND DIAL, composed of students interested in various phases of radio work — announcing, writing, and technical work.

THE NEW HAMPSHIRE VARSITY CLUB, composed of men who have earned Varsity athletic letters.

OCCUPATIONAL THERAPY CLUB

OPUS 45, Music Club

THE OUTING CLUB sponsors out-of-doors activities, especially mountain climbing and skiing, and conducts the annual Winter Carnival. The club owns cabins in Franconia Notch, at Jackson, and at Mendum's Pond, nine miles from Durham. The club has a fleet of Town Class Junior sloops. Throughout the college year, weekly climbing or skiing trips are conducted. Membership is open to all students, faculty members, and alumni.

PAN HELLENIC co-ordinates interfraternity women's activities and regulates the rushing period.

PHI KAPPA PHI, National, Honorary, highest-ranking Seniors selected from all Colleges

SIGMA PI SIGMA, National, Honorary, Physics

PHI SIGMA, National, Honorary, Biology

PHI UPSILON OMICRON, National, Honorary, Home Economics

PI GAMMA MU, National, Honorary, Social Science

PI MU EPSILON, National, Honorary, Mathematics

PLANT SCIENCE CLUB, Faculty members and Graduate assistants

THE POETRY WORKSHOP, a group of students interested in the study and writing of poetry

POULTRY SCIENCE CLUB

THE PRESS CLUB

PSI CHI, National, Honorary, Psychology

PSI EPSILON, Honorary, Business, and Economics

THE SALON ENSEMBLE is composed of selected students and plays for dramatic productions

SCABBARD AND BLADE, Company F, Sixth Regiment, National, Honorary, Military

SHORT STORY CLUB

SOCIOLOGY CLUB

THE SOPHOMORE SPHINX

THE SPANISH CLUB

STUDENT UNION BOARD

THE STUDENT WORKSHOP, open to any student or faculty member for the execution of projects of personal interest and selection. Typical activities include poster making, design and printing of greeting cards, design and construction of furniture and other objects in wood, plastic, and metal. Available facilities include air-brush equipment, printing presses, silk screen process, wood turning and metal spinning lathes, wood carving and painting equipment. Not a course; no laboratory fee; nothing assigned; requirements for safety and protection of persons and equipment only.

THE STUMPERS, debating society

TAU BETA PI ASSOCIATION, Alpha New Hampshire, honor engineering society

TAU KAPPA ALPHA, National, Honorary, Debate and Oratory

THE UNIVERSITY BAND is composed of members of the University Regiment and selected students.

THE UNIVERSITY CHOIR, advanced choral group

THE UNIVERSITY SYMPHONY ORCHESTRA is composed of selected students.

UNIVERSITY OF NEW HAMPSHIRE SAILING ASSOCIATION OF OUTING CLUB, open to students, Faculty and Alumni, furthers the sport of intercollegiate racing, and provides sailing facilities for members. The club owns a fleet of Town Class Junior sloops which are anchored on Great Bay, three miles from Durham.

THE WOMEN'S RECREATON ASSOCIATION includes all women students and provides opportunity for participation in extra-curricular sports and co-recreational activities. The organization owns a cabin at Mendum's Pond for outings and sponsors certain social events. It also sponsors the Dance Club, Riding Club, Ski Club, Rifle Club, and Durham Reelers.

SOCIAL HONORARY SOCIETIES

THE BLUE KEY, Senior men leaders

MORTAR BOARD, Senior women leaders

SENIOR SKULLS, Senior men leaders

STUDENT PUBLICATIONS

THE GRANITE is an illustrated annual published by the Junior Class.

THE NEW HAMPSHIRE, weekly newspaper, presents Campus and Alumni news and is published by a Student Editorial Board.

RELIGIOUS ORGANIZATIONS

THE CANTERBURY CLUB is an association of the Episcopal students on campus.

THE CHANNING-MURRAY CLUB fosters the religious activities of Unitarian students.

THE CHRISTIAN FELLOWSHIP. To stimulate interest in and active support of foreign and home missions and to encourage personal participation in the work of the Church of Christ.

A CHRISTIAN SCIENCE ORGANIZATION welcomes all who are interested to its weekly testimonial services.

THE HILLEL CLUB is an organization to bring to Jewish students a more adequate knowledge of their heritage, to make Jewish religious and cultural values vital and relevant for the college generation, and to foster friendship, co-operation, and understanding among the various religious groups on the Campus. Activities include religious services, holiday observances, lectures, musicals, classes in Jewish studies, discussion groups, and the maintenance of a library relative to Jewish study which is open to all students. A Rabbi is the Counselor to the students.

THE NEWMAN CLUB, a club of Catholic culture and fellowship, fosters the spiritual, intellectual, and social interests of Catholic students. It is a member of the Newman Club Federation. Activities include corporate communions, discussion study groups, lectures, dramatics, parties, dances, etc. A Reading Room is provided in New Hampshire Hall.

THE UNITED PROTESTANT ASSOCIATION is an organization to provide a Protestant chaplain and to maintain an adequate program of activities for the developing of Christian life in the students of Protestant affiliation of the University and to co-operate in the inter-faith religious work of the Campus. The Board of Directors is composed of representatives of Protestant churches in the State, parents of students, Alumni, Faculty, and students of the University, and the State YMCA and YWCA.

THE UNIVERSITY RELIGIOUS COUNCIL represents the co-operative religious work of the Hillel Club, the Newman Club, and the United Protestant Association. Projects include Religious Emphasis Week, recreation, radio programs, and publicity.

SOCIAL ORGANIZATIONS, FRATERNITIES, AND SORORITIES

THE ASSOCIATION OF WOMEN DAY STUDENTS furthers the interests of women commuters in the cultural and social activities of the University.

DORMITORY AND CLASS ORGANIZATIONS — Each of these groups is organized to promote its social activities.

FRATERNITIES* — Kappa Sigma (1894) 1901; Sigma Alpha Epsilon, (1894) 1917; Theta Chi, (1903) 1910; Lambda Chi Alpha, (1906) 1918; Alpha Tau Omega, (1907) 1917; Phi Mu Delta, (1914) 1918; Pi Kappa Alpha, (1921) 1929; Sigma Beta, (1921); Phi Alpha, (1922) 1924; Theta Kappa Phi, (1922) 1923; Alpha Gamma Rho, (1923) 1924; Phi Delta Upsilon, (1924); Tau Kappa Epsilon, (1926) 1932; Acacia, (1949) 1949.

SORORITIES* — Chi Omega (1897) 1915; Alpha Chi Omega, (1913) 1924; Alpha Xi Delta, (1913) 1914; Phi Mu, (1916) 1919; Kappa Delta, (1919) 1929; Theta Upsilon, (1926) 1930.

OTHER SERVICES AND FACILITIES

The University's educational services are carried to all parts of the State by two Extension Services.

THE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS — Information relating to agriculture and home economics is disseminated to people throughout the State by means of demonstrations, meetings, the press, radio, and individual contacts. Besides furnishing information, this Extension Service promotes its application to situations on farms, in homes, and in communities. It is conducted co-operatively with the United States Department of Agriculture and the county farm bureaus of the State by a staff of 67 members. The staff includes specialists in the fields of Farm Management, Dairying, Forestry, Soils and Crops, Poultry, Horticulture, Marketing, Engineering, Nutrition, Clothing, and Home Management. Information is brought to the people in each county through a field staff of county extension agents, each county having Agricultural, Home Demonstration, and 4-H Club Agents.

Through a co-operative arrangement with the State Forestry and Recreation Commission and the United States Forest Service, eight County Extension Foresters cover the 10 counties of the State.

The Extension Service in Agriculture and Home Economics bridges a gap between the research center and the people of the communities. It presents to them the results of research in easily understandable form so that they may use it. Extension workers assist in the analysis of local problems. They help organize and carry out programs that deal with such problems. They assist in organizing groups when action is needed. They explain and interpret programs of other agencies and they are continually trying to develop initiative and leadership among rural people. The work is conducted on an informal basis and without charge to the individuals who participate.

THE UNIVERSITY EXTENSION SERVICE is designed to meet so far as possible, on a cost basis, group demands from the State at large for educational help of a college type especially in liberal arts and technology. Extra-mural courses with credit and extension courses without credit are developed off-campus to the extent that demand warrants and teaching personnel are available. Classes are usually held weekly; a minimum of 15 enrollees is required. Courses are taught by regular members of the University's resident faculty or by staff members of co-ordinate rank. Information on fees and other details may be obtained from the Director of University Extension, Thompson Hall.

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*The dates listed indicate (1) the date (in parentheses) of founding as local fraternity, and (2) th date of granting a charter to the national fraternities.

Special courses for the benefit of industry dealing with industrial office organization and management, personnel organization and administration, industrial supervision and foremanship, human relations in industry, sales and sales management, etc., are being developed; a catalogue describing these is available upon application.

Liberal arts courses which are now regularly available in extension include public speaking, speech for teachers, audio-visual education, educational tests and measurements, principles of guidance, public school administration, mental hygiene for teachers, American government, principles of sociology, marriage and family relations.

The University Extension Service operates an audio-visual center, which maintains a library of educational sound and silent films, standard lantern slides, film strips and transcriptions, which are available with the co-operation of the State Department of Education to the schools of this State and northern New England.

It also provides assistance in recreation leadership; makes lecture engagements for faculty speakers; conducts forums; and arranges for institutes, conferences, and special short courses, on or off the campus.

The Agricultural Experiment Station is concerned with the solving of the more important agricultural problems. It has as its purpose the betterment of rural life by bringing science to agriculture. Typical experimental projects involve the breeding and testing of improved plants and animals, the nature and control of serious diseases and pests of plants and animals, problems in weed control, problems in the management of soils and crops, problems of labor efficiency, and the marketing of farm products. Routine testing of seeds, fertilizers and soils is conducted; plants and insects are identified; blood samples are tested; and post-mortem examinations are made. Bulletins covering a wide range of subjects are printed for free distribution to all persons in the State who have use for them.

The Engineering Experiment Station provides engineering and research facilities for the industries of the State and for various agencies of the State Government. The personnel and facilities of the University are available through this agency to manufacturers for the solution of technical problems.

At the present time, in co-operation with the State Planning and Development Commission, a long-range program devoted to studies of wood-waste utilization is in progress.

An unusual opportunity is provided for properly qualified undergraduate and graduate students to participate in the technological work of the Engineering Experiment Station.

Provisions can be made for the establishment of industrial fellowships by both in-state and out-of-state industries. At the present time, a number of firms have availed themselves of this opportunity to do specialized research in certain industrial fields.

OFFICE OF PUBLIC INFORMATION. Information about University activities is furnished the public through newspapers, magazines, and radio stations by the Office of Public Information. The Office also edits University publications and operates the University photographic service. It co-operates with the Alumni Secretary in the publication of the *New Hampshire Alumnus*, official alumni magazine of the University.

COUNCIL FOR SPONSORED RESEARCH — In recognition of the great need for closer association between industry and government and the University in the field of research, in 1949 a Council for Sponsored Research and the Office of University Co-ordinator of Research were created. The Council and the Co-ordinator have as their duties the establishment of University policy with respect to sponsored research, to assist members of the staff and prospective sponsors in framing proposals for research contracts, grants-in-aid and fellowships for graduate students, and, in general, to encourage the development of research in the several departments of the University.

Inquiries concerning the research programs of the University should be directed to the Co-ordinator of Research.

THE BUREAU OF GOVERNMENT RESEARCH is designed to serve as a clearing house and service agency for problems of government administration at the local and state level, and aims to assist officials and citizens of New Hampshire who are interested in public and governmental problems.

THE FORESTRY SUMMER CAMP, located in the heart of the White Mountains at Passaconway, includes a tract of 400 acres of timberland on which are examples of most of the northern forest types. The property is surrounded by the White Mountain National Forest which makes available to the camp more than a half million acres of the finest woodlands in the East. Students are housed in an attractive building, formerly a summer hotel. It not only affords adequate living facilities but also provides drafting rooms and laboratory space. The boundary of a national game area of 60,000 acres is less than a half mile from camp, and the Bartlett Experiment Forest is only a short distance away. National forest operations are carried on nearby and serve for purposes of instruction. Recreational activities include swimming, fishing, tennis, and mountain climbing. There are 50 mountain peaks within a 10-mile radius. Bartlett, Conway, and North Conway villages are easily accessible.

THE HAMILTON SMITH LIBRARY is the main building in the University library system, which includes two branch libraries: the Plant and Animal Sciences Library in Nesmith Hall and the James Hall Chemistry Library. There is also an Engineering Reading Room in Kingsbury Hall. The library is a United States Government Depository Library. The book collection numbers 171,000. Eleven hundred and forty periodicals are received. Of the fifty newspapers regularly checked in, the dailies (including a half dozen metropolitan papers) are placed in the Newspaper Room, the weeklies (among which are numbered most of the New Hampshire weeklies) are sent to Durham Notch Hall.

A small and accessible area houses newer books for pleasure reading, and the open stacks give the student every opportunity to familiarize himself with the world of books.

Because the Hamilton Smith Library serves the townsfolk as well as the Faculty and students of the University, there is a children's room (the Charlotte Thompson Room) well stocked with the best in children's literature. This collection, used constantly by the children, provides an unusual laboratory for the students and others who plan to work with children and children's books.

Housed on the second floor is the Art Division. In its exhibit gallery is displayed a constant succession of loan exhibitions selected to appeal to a variety of interests. From this department framed pictures, both originals and reproductions, are lent to students for a semester at a time, for enjoyment in their own rooms. There is a collection of over 1,700 phonograph records, the nucleus of which was a gift from the Carnegie Corporation of New York, and among which are a few long-playing records. There are three listening rooms. The largest of these, used also for group music appreciation, is the Philip Hale Room, which contains the desk, chair, and many of the books of the well-known music critic.

Smoking is permitted in one study-room in the Library.

MUSEUM COLLECTIONS. Although the University has no museum, there are several collections housed in various buildings. At present, specimens are being collected to illustrate the zoology, geology, entomology, and Americana of New Hampshire. Many New Hampshire collectors and naturalists have made the University their permanent depository.

UNIVERSITY LANDS AND BUILDINGS

University lands comprise approximately 2,300 acres. Lands at Durham total about 1,500 acres, of which some 170 acres are devoted to the campus proper and athletic fields; 316 acres to hay and mowing; 42 acres to orchards and gardens; 471 acres to forest; 464 acres to pasture; and 20 acres to ponds.

BUILDINGS FOR ADMINISTRATION, INSTRUCTION, AND RESEARCH

THOMPSON HALL (1893), the general Administration building, is named for Benjamin Thompson, benefactor of the University. It contains the Offices of the President, the Business Office, the Offices of the Dean of Student Administration, the Office of the Alumni Secretary, the Offices of the Deans of Men and Women, the Office of Public Information, the Offices of the Extension Services, the Office of the Summer Session, and the Office of the Graduate School. Located on the third floor are the Office of the Secretary, the library and studio of the Music organizations, the office and classroom of the Speech Section of the English Department, and the University Radio Station. The University Bookstore is also in this building.

Conant Hall (1893), named for John Conant of Jaffrey, a generous friend of the College, houses the Departments of Geology and Geography, Hotel Administration, and Psychology.

Nesmith Hall (1893, remodeled and enlarged in 1939), houses all University Plant and Animal Science Departments except Dairy Husbandry and Forestry. One of the four original Campus buildings, it has been enlarged and renovated into a modern science center, four times its former size. It is named for Judge George W. Nesmith of Franklin, a former President of the Board of Trustees.

Charles E. Hewitt Hall (1893, enlarged and remodeled in 1946-7), houses the laboratories in machine, forge, and welding shop practice, and the Department of The Arts, including the Pottery Laboratory, and looms, rug frames, tools, and supplies for several types of handcraft projects. Located also in this building are the Photographic Studio and the Educational Film Library; the Student Workshop; the University Printing Service; and the Cold-Storage Plant used by the Department of Horticulture for the fruit from the University orchard and as a laboratory for instruction in the handling and storage of horticultural products. It is named for Charles E. Hewitt, first Dean of the College of Technology.

Morrill Hall (1902) serves as the headquarters for the College of Agriculture, and includes classrooms and office space for the Departments of Agricultural Economics, Economics and Business Administration, Government, and the Bureau of Government Research. It is named for Senator Justin Morrill of Vermont, sponsor of the Land Grant Act.

Ballard Hall (1905, remodeled in 1942), affords classroom, studio, and office facilities for the Department of Music, and serves as headquarters for *The New Hampshire*, *The Granite*, and a number of student organizations.

New Hampshire Hall (1906, remodeled in 1940), provides facilities for the Department of Physical Education for Women and for student organizations, including the Hillel Club, the Newman Club, and the United Protestant Association; it contains a lounge room with furnishings provided by the Alumni Association, an auditorium seating 1,000, and a completely equipped stage for dramatic productions.

Hamilton Smith Library (1907) was erected by means of a union of funds left by Hamilton Smith of Durham for a town library, a gift by the Carnegie Corporation, and funds provided by the State. In 1937, large wings were added to each side of the original building thereby doubling reading and service areas. The next year the entire second floor was remodeled to include sound-proof music listening rooms, an exhibition gallery, and a fine arts reading and reference room. In 1940, a new stack wing was added.

Dairy Building (1910) is arranged and equipped for purposes of instruction in Dairy Husbandry and Manufacture.

All Campus paths eventually lead to the Library and Historic "T' Hall.

Congreve Hall is a modern dormitory for women.

DEMERITT HALL (1914), named for Albert DeMeritt of Durham, houses the Departments of Mathematics and Physics, and the Departments of History and Sociology.

MURKLAND HALL (1927), named for Charles Sumner Murkland, President from 1893 to 1903, is the headquarters of the College of Liberal Arts and includes classrooms and offices for the Departments of English, Languages, Philosophy, and Education.

CHARLES JAMES HALL (1929), bearing the name of a former Professor of Chemistry, provides offices, classrooms, and laboratories for instruction and research for the Departments of Chemistry and Agricultural and Biological Chemistry.

CHARLES HARVEY HOOD HOUSE (1932), headquarters for the University Student Health Service, outpatient clinic and hospital, is the gift of the late Charles Harvey Hood and Mrs. Hood of Boston. It was presented to the Trustees with funds for its maintenance, in 1930, the fiftieth anniversary of Mr. Hood's graduation from New Hampshire College. It is completely furnished and equipped for all types of medical and emergency surgical service.

PETTEE HALL (1938), named in honor of the late Dean Charles H. Pettee, houses the Departments of Agricultural Engineering, Home Economics, and Military Science.

CRAFT COTTAGE houses the Nursery School of the Department of Home Economics.

ANIMAL METABOLISM LABORATORY is maintained for the research studies in animal metabolism conducted by the Agricultural Experiment Station.

BUILDINGS AND GROUNDS SERVICE BUILDING (1940) contains the Office of the Superintendent of Properties, shops and storage rooms of the Buildings and Grounds Service Departments, and the University Rifle Range. The University and Town of Durham fire station is also located in this building.

DURHAM NOTCH HALL (1947), a war-surplus recreation building, was moved to the campus by the Federal Works Agency. It provides for the serving of light lunches through the day and evening, a center for commuting students, and facilities for social and organization activities.

FORESTRY BUILDING (1947), a war-surplus building, was moved to the Campus by the Federal Works Agency. It houses the Department of Forestry.

PUTNAM HALL — (1949), named in honor of George Martin Putnam, houses the Department of Applied Farming and the Livestock Judging Pavilion.

KINGSBURY HALL (1950), named for Professor Albert Kingsbury, head of the Department of Mechanical Engineering, 1891-1899, is the headquarters of the College of Technology. It has classrooms, offices, and laboratroies for the Departments of Civil Engineering, Chemical Engineering, Electrical Engineering, and Mechanical Engineering, and for the Engineering Experiment Station.

FARM LANDS AND BUILDINGS

The University Farm, maintained for instruction and research, includes the 42-acre Horticultural Farm, the Poultry Plant, the several livestock barns, extensive greenhouses, and the University Forest. The Horticultural Farm has buildings of its own, an unusually fine orchard site, acreage for small fruit and vegetable production, an apiary, and a packing plant equipped with a grader and other apparatus for the handling of fruit. In the poultry unit are several houses and range facilities, a special pathological laboratory for disease diagnosis, and experimental flocks of hens and turkeys. Livestock barns include the Dairy Barns, providing accommodations for 120 dairy animals and containing a modern Milk House; the Stock Barn, housing purebred cattle and sheep; the Stable and Exercise Ring of the New Hampshire Racing Commission; the Horse Barn and the Piggery. The University Forest has 655 acres of old and second-growth timber and a nursery for the growing of seedling trees.

ATHLETIC FACILITIES

University Field House (1938) has a main floor area of nearly half an acre. It provides opportunity for indoor football and baseball practice and track. A movable wooden floor and bleachers for 2,500 spectators are installed for basketball. Offices and classrooms of the Department of Physical Education for Men are also located here.

New Hampshire Hall (1906 and 1940) accommodates the Department of Physical Education for Women, including offices and classrooms of the Department. It contains a large gymnasium floor with folding doors which provide a basketball court in one half and a dance studio in the other. The floor also provides for six badminton courts. In addition, the building contains a large corrective room and games room and a spacious locker room with 600 lockers.

Lewis Fields (1936), outdoor recreational center, are named for Edward Morgan Lewis, President from 1927 to 1936. They include four fields for football, soccer, and lacrosse, two baseball diamonds, a cinder track with a 220-yard straightaway, pits and runways for jumping and valuting, an outdoor wooden track, pits and runways for jump-courts, an ice hockey rink, concrete bleachers seating 1,750 spectators at baseball games, and concrete stands seating 5,000 spectators at football, track, and field contests. The equipment was built in co-operation with Federal work-relief agencies. Materials used in the construction of the main field stands were provided by Alumni of the University as the first project of the Alumni Fund.

Brackett Field (1936), the Varsity baseball field on Lewis Fields, is named in honor of William H. L. Brackett, '14, prominent student leader of his college generation, who died from wounds received during World War I.

Memorial Field (1922), outdoor recreational center for women students, was the first gift of major importance from the Alumni to the University, and is a memorial to the 18 New Hampshire men who lost their lives in World War I.

SWIMMING POOL (1938) is available, during the summer, for general swimming and classes of instruction. Life-guard service, maintained by the University, a graduated diving tower, and dressing and locker facilities are features of the swimming unit. The water is scientifically treated through a filtration plant.

EXERCISE RING (1936) of the New Hampshire Racing Commission is used for riding classes in Physical Education. Student Riding Trails are planned.

RESIDENTIAL HALLS*

COMMONS (1919) contains the Freshman dining hall, the guests' dining room, the Faculty dining room, a cafeteria, a trophy and lonnge room, student organization rooms, and dormitory facilities for 44 students. $105 double; $125 single.

FAIRCHILD HALL (1916) honors Edward Thomson Fairchild, President from 1912 to 1917. It furnishes accommodations for 113 undergraduate men. $130 double; $150 single.

EAST AND WEST HALLS (1918), erected by the United States Government to furnish housing facilities for troops in training at the College during World War I, provide comfortable quarters at low cost for 234 men. $85 double; no singles.

SCHOFIELD HOUSE (1895, remodeled and enlarged in 1943), honors Mrs. Mary Lyon Cheney Schofield a supporter of educational, social, and cultural programs in the State. It furnishes quarters for 52 undergraduate women. $100 double; $120 singles.

SMITH HALL (1908), originally constructed through the generosity of Mrs. Shirley Onderdonk of Durham as a memorial to her mother, Mrs. Hamilton Smith, furnishes rooming facilities for 79 women students. $95 double; $115 single.

CONGREVE HALL (1920) accommodates 233 undergraduate women. The first unit was built with funds made available through the will of Mrs. Hamilton Smith of Durham and bears her daughter's maiden name. A second unit was added in 1938, and the building was completed in 1940. $130 double; $150 single.

HETZEL HALL (1925), named for Ralph D. Hetzel, President from 1917 to 1927, accommodates 156 undergraduate men. $130 double; $150 single.

SCOTT HALL (1932), named for Clarence Watkins Scott, Professor of History from 1879 to 1930, furnishes accommodations for 119 undergraduate women. $130 double; $150 single.

ELIZABETH DEMERITT HOUSE (1931), named for Mrs. Elizabeth P. DeMeritt, Dean of Women from 1919 to 1931, and maintained for practice in Home Management, is a modified Cape Cod cottage, thoroughly equipped with modern househoud devices. It houses six resident students and two instructors.

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*Price is per student per academic year.

Luella Pettee House (1941), named for Mrs. Luella Pettee, wife of former Dean Charles H. Pettee, provides quarters for members of the staffs of the University Service Departments.

Grant House (1942) furnishes quarters for 15 undergraduate women. $100 double; $120 single.

Engelhardt Hall (1946), named for the late Fred Engelhardt, President from 1937 to 1944, accommodates 169 men. $115 double and triple; $135 single.

Gibbs Hall (1946) honors William David Gibbs, President from 1903 to 1912. It furnishes accommodations for 169 men. $115 double and triple; $135 single.

Hunter Hall (1946) is named for Roy Deneale Hunter, a Trustee from 1916 to 1944; President of the Board from 1931 to 1944, and acting President of the University 1936-1937, and in 1944. It accommodates 169 men. $115 double and triple; $135 single.

Brook House provides quarters for 13 undergraduate women. $90 double; $110 single.

College Road Apartments and Dormitory (1946-7) are war-surplus housing units moved to the Campus by the Federal Public Housing Authority for the housing of veterans. Quarters are provided for 54 men and 180 families. Dormitory, $90 double; $110 single.

New Dormitories. Construction was begun in August and September, 1950, on a new dormitory for men and a new dormitory for women. It is expected that these buildings will be ready for use by the opening of the fall semester, 1951. Men's dormitory, $140 double; $160 single. Women's dormitory, $150 double; $170 single.

METHODS OF ADMISSION

The University will admit without examination properly prepared New Hampshire students who are graduates of high schools or academies of New Hampshire that are approved by the State Board of Education, or those who are graduates of other accredited preparatory schools.

Applicants must have a scholastic record ranking in the upper two-fifths of the graduating class in order to be eligible for admission without examination.

The number of out-of-state students admitted each year is limited by law to a small proportion of the entering class. Selection of out-of-state candidates is made primarily on the basis of their high-school records, but such traits as character, leadership, and initiative will be taken into account. Because of the large number of New Hampshire students needing financial assistance in the form of employment, out-of-state applicants will be expected to give evidence of reasonable financial backing.

Applicants for admission are required to fill out an application form prepared by the University. Copies of this form may be obtained from secondary-school officials in New Hampshire or from the Director of Admissions.

An applicant for admission who is a resident of New Hampshire is required to remit a tuition deposit of $10 with his application. One from outside the State is required to remit $25. If the applicant is admitted to the University, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. In the case of the applicant who is accepted for admission but does not enter or who withdraws after being accepted, the advance payment will not be returned. Remittance should be made either by check or by money order payable directly to the University of New Hampshire and should be sent with the application for admission.

Applications for admission in September should not be made until a student has received grades for the first semester of the senior year in high school. To insure consideration before the out-of-state quota is filled, out-of-state students should file applications not later than the middle of March. To insure eligibilty for financial aid and a choice of dormitory rooms, in-state students should apply during the spring. It is understood that the preparatory work of students applying during the spring will be completed by the end of the school year. No application will be considered which is not complete one week before the start of Orientation Week.

Candidates for admission to the Freshman Class must show evidence, either by credential or examination, that they are prepared in 15 units.

An entrance unit represents one course of four or five recitations a week for one year. It is assumed that two hours of shop or laboratory work are equivalent to one hour of classroom work.

Preparatory subjects are divided into six groups. The minimum numbers of units which should be offered in each group are: Group A, English, 3; Group B, Foreign Languages, 2 in a single foreign language, but none required if Group C is offered; Group C, Mathematics, 2 or 3*, none for Liberal Arts if Group B is offered; Group D, Natural Science, 1; Group E, Social Science (including History), 1; Group F, Vocational Subjects and miscellaneous, none required. Elective units may be offered from all groups, including a fourth year of English. At least 12 of 15 units should be from Groups A, B, C, D, and E.

Cases not covered by the above statements will be decided by the Committee on Admission.

Candidates for advanced standing may be admitted on the basis of the work satisfactorily completed at the institutions from which they come. Students leaving other institutions in poor scholastic standing will not be admitted.

Every candidate for admission claiming New Hampshire residence shall be required to complete a form which contains a statement to the effect that his parents are legally domiciled in the State of New Hampshire and that their names have appeared on the check list of the

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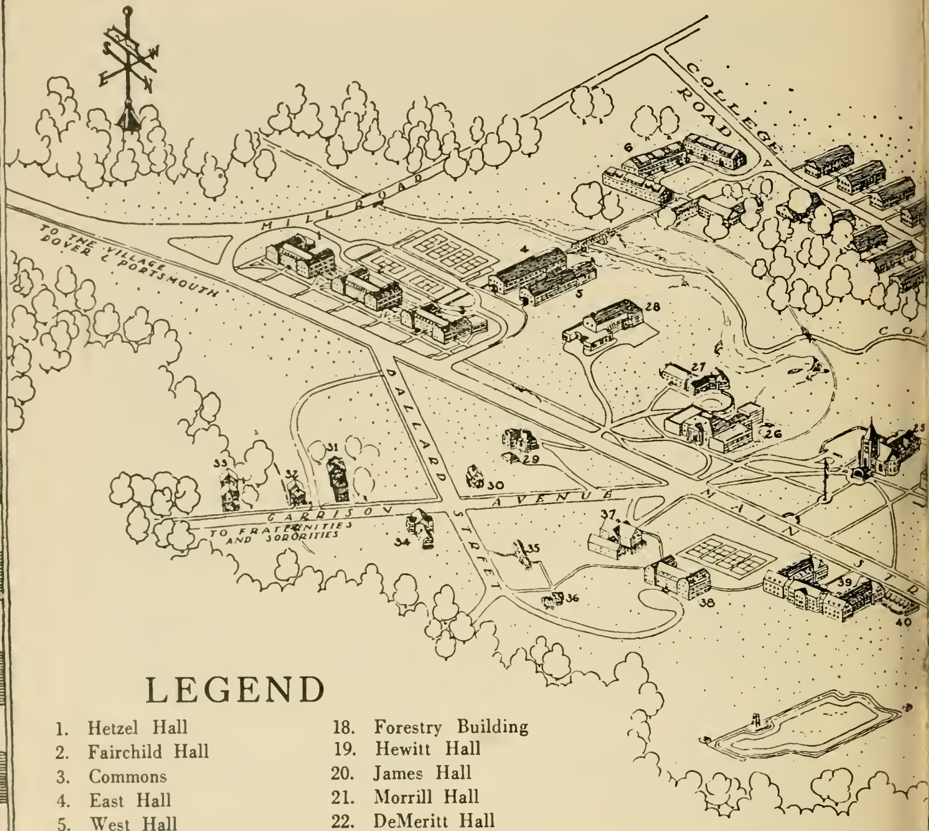
*This must be Mathematics preparing for further Mathematics; Commercial Arithmetic and Shop Mathematics as classed as Vocational Subjects. For students wishing to pursue courses in Engineering, Chemistry, or Physics, at least 3 units of Mathematics must be offered, including Elementary and Advanced Algebra and Plane and Solid Geometry.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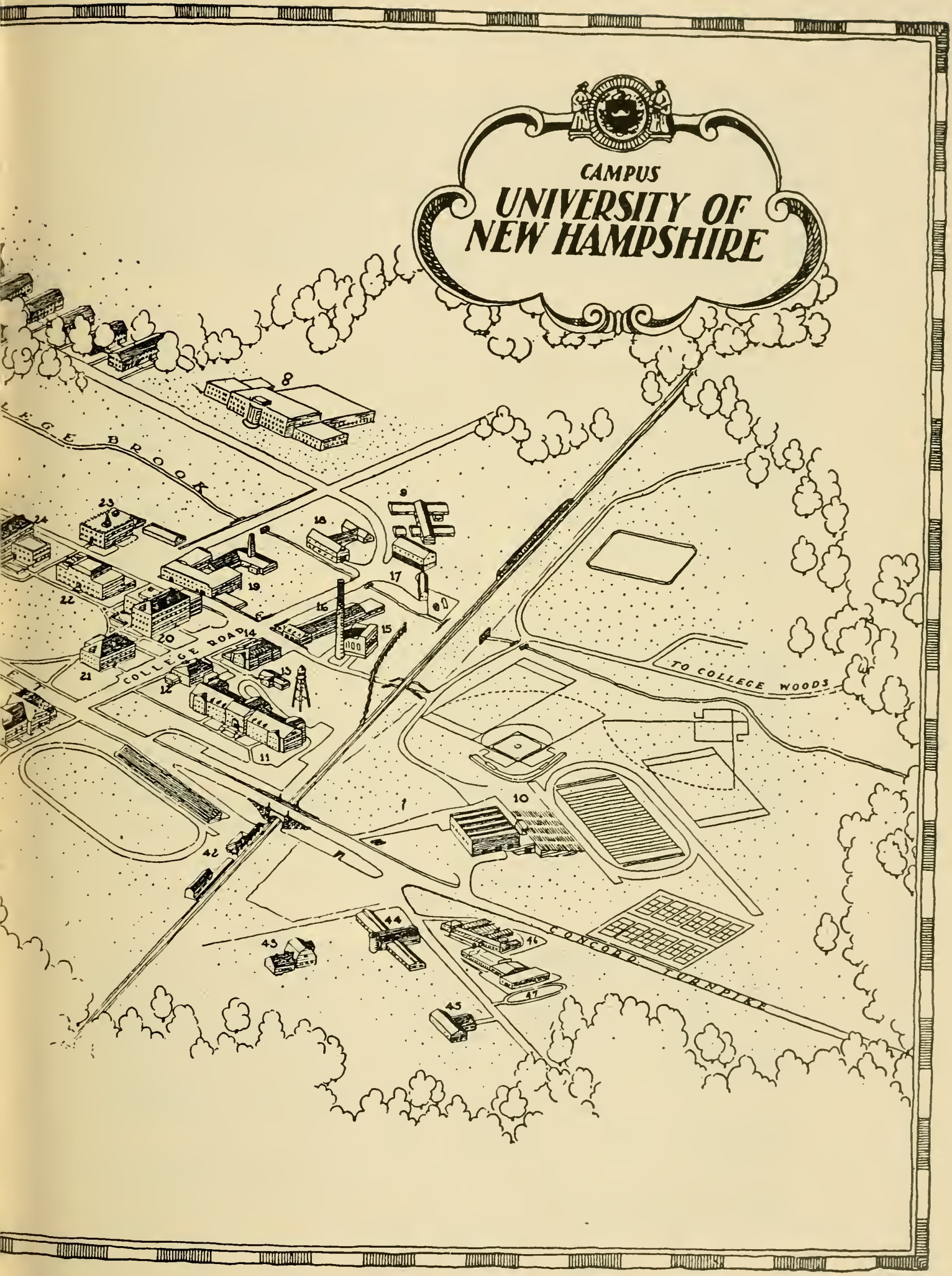
LEGEND

1. Hetzel Hall
2. Fairchild Hall
3. Commons
4. East Hall
5. West Hall
6. Engelhardt, Hunter, and Gibbs Halls
7. College Road Apartments
8. Technology Building
9. Poultry Plant
10. Field House
11. Nesmith Hall
12. Dairy Building
13. Nutrition Lab.
14. Pettee Hall
15. Power Plant
16. Service Building
17. Service Garages
18. Forestry Building
19. Hewitt Hall
20. James Hall
21. Morrill Hall
22. DeMeritt Hall
23. Conant Hall
24. Murkland Hall
25. Thompson Hall
26. Library
27. Hood House
28. Notch Hall
29. President's House
30. Grant House
31. Schofield House
32. Brook House
33. Luella Pettee House
34. Ballard Hall
35. Elizabeth DeMeritt House
36. Craft Cottage
37. Smith Hall
38. Scott Hall
39. Congreve Hall
40. Faculty Club
41. New Hampshire Hall
42. Railroad Station
43. Piggery
44. Livestock Barn
45. Commission Barn
46. Greenhouses
47. Putnam Hall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UNIVERSITY OF NEW HAMPSHIRE
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COLLEGE ROAD
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TO COLLEGE WOODS
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CONCORD TURNPIKE

town or city of domicile for the entire past year. This statement must be notarized before an official authorized to administer oaths. Students admitted from foreign countries or states other than New Hampshire shall be deemed to be non-resident students throughout their entire attendance at the University unless and until the parents shall have gained *bona fide* residence in New Hampshire.

Students admitted to the University must present to the Director of the University Health Service completed medical history and physical examination reports before registration can be completed. The forms for this report are furnished by the University.*

SPECIAL STUDENTS

A person who has not been formally admitted as a candidate for a degree at the University, upon presenting evidence of his ability to carry successfully the desired courses, may be admitted as a special student. He may be required to demonstrate by examination or otherwise that he is qualifield to undertake college work. Recent failure to maintain good academic standing in any college or university would be evidence of his inability to carry the work successfully.

In choosing his studies, the special student must have the approval each semester of the chairman of each department in which he elects courses and of the dean of the college in which he is taking a majority of his credits.

If a special student meets the usual requirements for admission as a candidate for a degree, he may, at the beginning of any semester by making the proper application, change from a "Special" to a "Regular" student status. A special student, who does not meet the usual admission requirements of the University, may be admitted as a regular student on the basis of completion of at least 26 semester hours of work with a minimum grade point average of 1.6 in all work taken as a special student. Such a special student must make the change at the beginning of the semester following the completion of the required 26 semester hours. Work taken as a special student shall count toward a degree, if the student later becomes classified as a regular student.

ADVANCED STANDING

BY TRANSFER

Candidates for advanced standing from approved institutions may be admitted. Their status will be tentatively determined by the quantity and quality of the work completed at the institution from which they come. These credits are not made part of the permanent record until the student has completed at least one semester at the University of New Hampshire with a certain average. No transfer credit will be given for courses in which the student received the lowest passing grade.

(1) Such students must file the same application for admission as required of Freshmen. In addition, they must furnish, at least 30 days

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*Exemption from these requirements may be secured only through submission of a written statement from parent or guardian which indicates that the request is made because of religious beliefs.

prior to the time of transfer to the University of New Hampshire, an official transcript of work done at institutions previously attended.

(2) All candidates for the bachelor's degree, admitted to advanced standing, must spend their last year in residence, either in course or in Summer Session. This requires the completion of at least a quarter of the credits required for their degree.

(3) Regardless of the amount of advanced standing a student may secure, in no case shall he be granted a bachelor's degree until he has satisfied the full requirements of the curriculum he may elect.

ORIENTATION WEEK

Orientation Week was instituted at the University of New Hampshire in 1924. It is evident from a study of the results of the activities of this Week that it has served as a valuable means of adjusting new students, of creating right attitudes toward college work, and of minimizing the usual delays during the first few weeks of the regular term. Orientation Week also affords an opportunity for the students to learn to know each other, to organize their efforts, to work together, to play together, and to become acquainted with the Campus, the buildings, the Faculty, and with the courses of study and the traditions of the University.

Attendance of all new students throughout Orientation Week shall be obligatory.

FEES AND EXPENSES

The charge for tuition and fees is $200 per year for residents of New Hampshire and $450 for non-residents. Tuition and fees are itemized as follows: Tuition — $75 for residents of New Hampshire and $325 for non-residents. Fees— registration, $10; laboratory and library, $60; health and infirmary, $15; recreational facilities, $25; general University fee (incidentals), $15. Refundable deposits may be required to cover loss or breakage in certain departments. A charge will be made for individual lessons in music, as noted in the description of Applied Music courses.

Any student registering for 8 credits or more per semester shall pay the full tuition. Any student registering for less than 8 credits shall pay $7.50 per credit hour if a resident, and $16.25 per credit hour if a non-resident.

ESTIMATE OF FRESHMAN EXPENSES FOR A YEAR*

	High	*Average*	*Low*
Room (Dormitories)	$170	$120	$ 85
Board (at Commons)	250	250	250
Tuition and fees	200 (450)	200 (450)	200 (450)
Books	60	50	35
Laundry	40	25	15
Incidentals†	110	75	45
Total	$830 (1080)	$720 (960)	$630 (880)

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*Figures in parenthesis are for non-residents of New Hampshire.

†Expenses for travel, clothing, etc., vary with the individual student, and should be added.

TUITION AND FEES — Tuition and fees for each semester are payable in advance. Students who find it difficult or impossible to procure the necessary funds for the full amount due for a semester may make arrangements acceptable to the Treasurer for a series of payments during a semester.

CHANGES IN RATES — The University reserves the right to adjust charges for such items as tuition and fees, board, and room rent from time to time. Such changes will be held to a minimum and will be announced as far in advance as feasible.

Registration for eight or more credits entitles the student to admission to all home Varsity athletic contests.

ADVANCE TUITION PAYMENT — An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application; one from outside the State is required to remit $25. If the applicant is admitted to the University, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. The advance payment of a student who is admitted, but does not enter, will not be returned.

MILITARY DEPOSIT — Uniforms for members of the Reserve Officers Training Corps are provided in co-operation with the Federal Government. A deposit of $15 is required of each student to whom military equipment is issued and is refundable, minus lost or damaged article, at the time of returning military equipment.

ATHLETIC LOCKER DEPOSIT — Every student participating in the programs of Physical Education and Athletics for Men and Physical Education for Women is required to deposit $1.00 for a locker. This will be refunded upon return of the lock to the equipment room, minus 25 cents per semester, to meet partially the expense of towel service.

STUDENT ACTIVITY TAX — The Student Activity Tax, authorized by vote of the undergraduate students with the approval of the Board of Trustees, must be paid by each undergraduate at the time of registration. The revenue from the tax provides each student with *The New Hampshire*, student newspaper; *The Granite*, University Annual; Durham Notch Hall membership, student activity center; Student Government, and class activities. The 1950-51 tax was $7.50.

BOOKS — Students may purchase books, classroom supplies, and other supplies at the University Bookstore in Thompson Hall.

ROOMS — The University has six dormitories for women and eight for men. All rooms are heated, lighted, and furnished. Bed linen, blankets, and towels, however, are provided by the individual student. Each women's dormitory is equipped with a laundry. A service room is provided in each dormitory where grills and irons may be used with safety. The rates for each dormitory are shown in the section of this bulletin describing the residential halls. Applications for rooms in the dormitories should be addressed to the Secretary, Office of Room Assignments, Thompson Hall, University of New Hampshire, Durham.

Students living in University dormitories are required to sign room contracts covering the college year.

A five-dollar ($5.00) room deposit must accompany each application, this deposit to be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage and will be returned at the close of the year or upon the student's withdrawal.

Room rent is payable in advance. For the Fall Semester room rent must be paid not later than August 15, and for other semesters during the registration periods. Reserved rooms will be held only until August 15 unless the Fall Semester's rent is paid before that date.

Rooms paid for and not occupied one day after registration may be declared vacant and the room rent returned, unless the individual holding the reservation makes a written request to the Dean of Men or Dean of Women to hold the room until a later date. The advance payment for the room will not be returned to those making this special request. No room will be reserved for more than ten days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or families may be secured for about the same prices as for those in University dormitories.

A woman student, who does not live at home, is required to room in one of the women's dormitories or a sorority house, unless she is working for her room in a private family. A competent house director is in charge of each women's dormitory.

BOARD — A dining hall is operated and supervised by the University for the accommodation and benefit of the students. All Freshmen, except those whose rooms and meals are provided at home, are required to board at the University Dining Hall for the first two semesters of attendance at the University. The aim of the compulsory regulation is to insure a broad fellowship and to safeguard the health of the first-year students by offering skilled dietetic oversight in selection and preparation of their food. The Dining Hall is equipped with the best appliances for cooking and serving on a large scale, and is subject to constant sanitary inspection by the University Physician. Board is $125 per semester, payable at registration for each semester.

The Dining Hall is not operated for profit. Savings made possible by reduced costs of operation are passed along to the students in the form of reduced board charges.

A cafeteria is open to all students of the upper classes who may desire to take advantage of the moderate price and the high quality of food available at the University Dining Hall.

PERSONAL CASH DEPOSITS — Students are urged to arrange personal checking accounts, or to place money on deposit in the Business Office until needed, in order to avoid possible loss resulting from keeping on hand considerable sums of money. Such banking arrangements will also facilitate payment at registration periods. The Bussiness Office will accept and cash student checks.

FINANCIAL AID FOR STUDENTS

The parents of many students at the University may find it a burden to bear the entire cost of four years of college education. This situation frequently is relieved in one or more of three ways: The student may help by working during the summer and in his spare time during the college year; the University or other organizations may grant a scholarship; the student may borrow from the University Loan Fund.

Student Work — During the college year, some students find employment as library assistants, assistants in instructional or research laboratories, proctors in dormitories, clerks in offices, workers in the dining halls, student janitors, and student workers on the University farms and about the Campus. Others find employment in fraternities, sororities, and in stores and households in the community.

A student in good health and of good academic ability should be able to earn in the neighborhood of $150 by working about 10 to 12 hours a week during the college year. *Students who are in poor health or who encounter unusual difficulty in their studies may find it unwise to work. Students who are employed over 15 hours a week, unless they are unusually energetic, will discover that their studies are likely to suffer or that they must forego extra-curricular activities.*

A student who resides in New Hampshire should count upon having at least $350 to $500, either from summer earnings or other savings or promised by his family. Inability to raise this amount of money should not cause a capable student to give up his plans for a college education; but he should get in touch with an official of the University for help in working out the plans to insure his being able to complete his first year. Many unusually ambitious students, with no financial help from their families, are able to work their way through college. The problem of self-support may be discussed in a personal interview with the Director of Admissions, or inquiries on the subject may be addressed to the Dean of Men or the Dean of Women.

Finding Work — Applications for part-time employment during the college year may be made directly to the employing official, such as the Manager of the University Dining Hall, the Librarian, or the Superintendent of Properties. The Dean of Women, for women students, and the Dean of Men, for men students, will be glad to assist students in finding employment either on Campus or in the homes and business establishments of Durham. An ambitious, hardworking student usually will find steady part-time employment, either on or off Campus. *However it is seldom possible for a Freshman to make complete arrangements before coming to Durham for Orientation Week. Usually the student's schedule of class hours must be arranged before a definite job is secured.*

Women students who wish to earn their room and board in private families must apply to the Dean of Women, who will supervise the making of arrangements. Freshman women are advised against attempting to earn their room and board in this way unless they are in good physical condition and have had excellent preparation for their University work.

SCHOLARSHIPS

A substantial number of students receive help from the nearly 600 scholarships which are awarded each year through the University Scholarship Committee. Two hundred-and-seventy-five of these scholarships are reserved for Freshmen and a number of others are open for Freshman applications.

The total annual value of the scholarships is slightly over $60,000. Most of them pay $100 a year, though a few pay less and a few pay substantially more.* Most of the scholarships are awarded to students with better than average scholastic records and a definite need for financial assistance. A few are awarded solely on the basis of outstanding accomplishment, while a number, the most important of which are the Tuition Grants, are awarded primarily on the basis of financial need. In addition to the scholarships offered by the University, in many communities there are available scholarships for high-school graduates who are planning college study. These usually are awarded by a local service or women's club or by a trust fund. Local banks frequently have information about such trust funds. Freshmen who live in New Hampshire may obtain scholarship information and application blanks from their high-school headmasters, the officers of the local Grange, or the University Director of Admissions. *The financial adviser for women students is the Dean of Women and for men students the Dean of Men. Students with special financial problems should contact one of them.* Upperclass students should get their scholarship applications from their office.

Applications by upperclassmen for scholarships should be filed by April 15 of the year preceding that for which the scholarship is sought. Applications by Freshmen should be made by July 15.

Holders of scholarships are expected to meet satisfactorily all college requirements.

SCHOLARSHIPS AND GRANTS OPEN TO FRESHMEN ONLY

Tuition Grants — Two hundred and fifty paying $100 each — $75 tuition plus a $25 payment on fees. For Freshman residents of New Hampshire; based on financial need.

Cogswell Freshman Scholarships — Twenty paying $150 each. For Freshmen entering from the following schools: Claremont (Stevens), Conway (Kennett), Franklin, Goffstown, Gorham, Groveton, Henniker, Hillsboro, Lancaster, Lebanon, Lisbon, Littleton, Manchester Central, Manchester West, Milford, Newport (Towle), Penacook, Peterborough, Tilton-Northfield, Woodsville. The selection is made from students who are nominated by their high schools in consideration of ability, character, and need. Winners also are eligible for a Tuition Grant. (Established by the Trustees of the Cogswell Benevolent Trust in Manchester.)

Ralph D. Hetzel Debating Scholarships — Three awarded each year, each paying $75 a year for three years. For winners of New Hampshire high-school debating competition.

Valentine Smith Scholarships — One awarded each year paying $100 a year for four years. The winner is determined by competitive examinations in English, American history, algebra (through quadratics), plane geometry, and either physics or chemistry; open to any Freshman. Examinations are given during Orientation Week. Notice of intent to take the examination should be given by September 1 to the Director of Guidance. (Gift of Hamilton Smith of Durham in 1898.)

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*Due to fluctuations in income from the endowment of a scholarship yearly payments for some of the list that follows may vary slightly from those indicated.

Sears Roebuck Agricultural Foundation Scholarships — Twelve paying $100 each. For Freshmen in the College of Agriculture coming from farm homes. (Given annually by the Sears Roebuck Agricultural Foundation.)

Sylvester M. Foster Scholarship — One paying $30. Based on need and ability. (Gift of Sylvester M. Foster, Class of 1884, in 1944.)

Roderick W. Smith Scholarship — One paying $30. For a Freshman from Cranford or some other New Jersey community. Based on need and ability. (Gift of Mr. and Mrs. Roderick W. Smith of Cranford, New Jersey, in memory of their son, Roderick Wheeler Smith, Jr. Class of 1945, who died in World War II.)

SCHOLARSHIPS OPEN TO FRESHMEN AND UPPERCLASSMEN

Conant Scholarships — Twenty paying $75 each ($100 to residents of Cheshire County). For men students resident in New Hampshire pursuing courses in agriculture. (Bequest of John Conant of Jaffrey.)

Non-Resident Scholarships — Fifty paying $100 each. For able students with financial need residing outside New Hampshire.

Class Memorial Scholarships — Seventeen paying $104 each. For students of good ability who participate in extra-curricular activities. The scholarships are named in honor of New Hampshire men who gave their lives in World War I. (Established by Classes of 1922 through 1930.)

100 Club Scholarships — Variable in number and amount. For good students who are outstanding in extra-curricular activities.

James A. Wellman Memorial Scholarship — One sufficient to cover the major part of a student's expenses each year. This scholarship usually is renewed each year for the holder and consequently is ordinarily open only once in four years. For a New Hampshire boy of promise from a small town or rural area who would otherwise be unable to afford college. (Gift of Mrs. James A. Wellman, Mrs. Dorothy Wellman Burroughs, Helen Vincent Wellman, and Robert P. Burroughs, in memory of James A. Wellman.)

Corinne H. Coburn Scholarships — Three of $75 to $100. To able and needy students from Exeter. (Bequest of Corinne H. Coburn of Exeter in 1943.)

Alien Student Scholarships — Two paying tuition and one paying tuition, room, and board. For a foreign student who otherwise would be unable to study in the United States.

Frank B. Clark Scholarships — Two or more paying $100 to $200. For physically handicapped students from New Hampshire. (Gift of Frank B. Clark of Dover.)

Nancy E. Lougee Memorial Scholarships — Two paying $75. For students with financial need from Strafford County. (Bequest of Amos D. Lougee of Somersworth in 1921.)

Winifred E. Chesley Scholarships—One or two paying $50 to $125. For students with financial need from Lee or Newmarket. (Bequest of Winifred E. Chesley of Lee in memory of her father and mother, Irving Glass and Carrie Wiggin Chesley, in 1943.)

Class of 1931 Scholarship — One paying $100. Preference is given to a child of a member of the Class of 1931. (Gift of the Class of 1931.)

John H. Haines Scholarship — One paying $75. Preference is given to a student with financial need from Somersworth. (Bequest of John N. Haines of Somersworth.)

Ordway Scholarships — One paying $60. Preference is given to a student with financial need from Hampstead or Sandown. (Bequest of Martha H. Ordway of Hampstead in 1934.)

Harvey L. Boutwell Scholarship — One paying $85. Preference is given to a student with financial need from Massachusetts. (Bequest of Harvey L. Boutwell of Malden, Mass., Class of 1882.)

Rosecrans W. Pillsbury Scholarship — One paying $20. Preference is given to a student with financial need from Londonderry. (Gift of R. W. Pillsbury of Londonderry in 1903.)

Spaulding Scholarship — One of $200 and one of $100 for students majoring in Poultry Husbandry. Preference to students who have carried on outstanding work with poultry in 4-H Club program. Awarded on basis of need, character, leadership, and scholarship. (Annual gift of Roy and Lee Spaulding of Billerica, Mass.)

SCHOLARSHIPS OPEN ONLY TO THOSE ABOVE THE FRESHMAN CLASS

University Scholarship — Fifty paying $100 each. For Sophomores and Juniors who are residents of New Hampshire and who have academic records above average combined with a definite financial need.

Hood Scholarships — Four of $250 each for upperclassmen in degree programs in the College of Agriculture and two of $100 each for students in the Applied Farming Department. For students who have maintained high academic records; preference is given to majors in Dairy Husbandry. (Gift of Charles H. Hood Dairy Foundation.)

Westinghouse Achievement Scholarship — One paying $500 for a Senior in electrical or mechanical engineering. For a student who excells scholastically and gives promise of unusual accomplishment in the field of engineering; selected by the Executive Committee of the College of Technology. (Gift of the Westinghouse Educational Foundation.)

George H. Williams Scholarships — Four paying $75 each. For deserving and meritorious students from Dover. Awarded for either the Sophomore or Junior Year; not renewable. (Bequest of George H. Williams of Dover.)

Alfred Ernest Richards Memorial Scholarship — One paying $150. For a student majoring in English; selected by the Faculty of the English Department. (Gift of Mrs. Alfred Ernest Richards in memory of her husband.)

Joseph L. Fearer Scholarships — Three paying $100 each. For students in the College of Technology. (Gift of Joseph L. Fearer, Class of 1931.)

Charles H. Wiggin Scholarship — Three paying $100 each. For needy and worthy students. (Bequest of Charles H. Wiggin of Malden, Mass., in 1943.)

J. Herbert Marceau Scholarship — One paying $90 a year. For an ambitious and needy woman student nominated by the President of the University. (Gift of Mrs. Frank M. Gunby in memory of her father.)

Currier-Fisher Scholarship of New Hampshire's Daughters — One of $110 or two of smaller amounts. For women students who are residents of New Hampshire. (Gift of New Hampshire's Daughters.)

Edmund L. Brigham Scholarship — Two of $75 each; for Sophomores. (Bequest of Edmund L. Brigham, Class of 1876.)

S. Morris Locke Memorial Scholarship — One paying $90; for a Senior who ranks highest in a field in which microscopic technique is emphasized. (Bequest of Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke.)

Georg Engelhardt Scholarships — Two paying $150 each; for Juniors who have been outstanding in scholarship and leadership. (Gift of former President Engelhardt.)

Charles H. Sanders Scholarship — For a Junior with financial need who has excelled in scholarship. (Bequest of Charles H. Sanders, Class of 1871.)

Blue Key Scholarship — One of $75 for a Junior man with satisfactory scholarship, extra-curricular participation, leadership, and high character.

Scabbard and Blade Scholarship — One of $50; for a Junior enrolled in advanced Military Science; selected by Scabbard and Blade and the Military Science Department. (Gift of Scabbard and Blade.)

New Hampshire Civic Federation Scholarship — One of $30; for a woman majoring in the Department of Economics and Business Administration; selected by the Dean of the College of Liberal Arts and two members of the department. (Gift of N. H. Branch of the National Civic Federation.)

Walter N. Shipley Scholarship — One of $50; for a student with financial need and good academic record; preference to be given to a student in Technology. (Bequest of Walter N. Shipley, Class of 1900.)

STUDENT LOAN FUND

In order to assist needy students to continue their education, the University has established a Student Loan Fund. After proper investigation and approval by parents, loans may be granted to responsible students for tuition or other college expenses, except that Freshmen holding Tuition Grants may borrow in addition not in excess of $25. These loans will bear interest at 2 per cent until graduation or withdrawal from the University, and 5 per cent after graduation or withdrawal and are payable as follows $5 a month beginning one year after graduation or withdrawal; $10 a month beginning two years after graduation or withdrawal; $15 a month beginning three years after graduation or withdrawal; and a like sum each month thereafter until principal and interest are paid.

The John H. Pearson Loan Fund — In co-operation with the trustees of the John H. Pearson Trust, Concord, N. H., a student loan fund has been established, and is administered under the conditions governing the student loan funds of the University.

James B. Erskine Loan Fund — In 1930, a bequest of Dr. James B. Erskine, of Tilton, provided a fund of approximately $10,000 for loans to students; loans to bear interest at the rate of 5 per cent until paid. This fund will be reserved for members of the Senior Class.

S. Morris Locke Loan Fund — Through a bequest of the late Mary D. Carbee of Haverhill, N. H., a fund has been created for loan purposes in memory of Mr. and Mrs. S. Morris Locke. The fund now totals approximately $22,000.

R. C. Bradley Loan Fund — The New Hampshire Poultry Growers Association has established a loan fund for assistance to undergraduates who have been in attendance at the University at least two years, with preference given to Seniors. Loans are open only to students majoring in Poultry Husbandry in the College of Agriculture and are based on character, scholarship, and need of financial assistance. Applications made to the Committee on Student Aid are approved by that committee with the advice of a committee selected by the directors of the Poultry Growers Association.

Charlotte A. Thompson Loan Fund — In 1940, a bequest of $500 provided a fund for loans to students. Miss Thompson was librarian at the Durham Public Library from 1895 to 1908 and was a member of the University Library Staff from 1907 until her retirement in 1929.

OTHER ASSISTANCE

Luella Pettee Fund — During the year 1939-40, as a memorial to Mrs. Charles H. Pettee, her many friends subscribed to a fund, the income of which is to be used, upon approval of the Dean of Women, to assist directly by small gifts worthy women undergraduates in need of financial assistance. The fund totals $1,883.

Frederick Smyth Book Fund — The income of a bequest of $2,000 in 1901 by Frederick Smyth, of Manchester, is applied to the purchase of books to be given annually to the most meritorious students.

CURRICULUMS — GENERAL INFORMATION

Choosing a Curriculum — Every student at the University specializes in some field of study. Except for the desirability of choosing among the three broad fields of Agriculture, Liberal Arts, and Technology, the Freshman entering the University of New Hampshire may delay selection of a specialty until he has been in attendance for a semester or for a year. In the College of Liberal Arts the selection of a program may be postponed until the end of the second year. However, the sooner a student decides what curriculum he proposes to follow, the better. Even when a student feels sure of his choice, he should bear in mind the possibility that he may change his mind and that it is well to avoid over-specialization in high school or in the first part of a college career. No one can foresee the trends of the future. Therefore, the wise person is one who is prepared to make his way in more than one field.

The high-school senior should talk over his future plans with his teachers and headmaster. *Officials of the University of New Hampshire also will be glad to consult with him, preferably in an interview, but if that is not feasible, by mail.*

Each year, the University gives the entering Freshman a series of tests. The object of these tests is to furnish additional information to enable the Faculty of the University to help the student choose the curriculum for which he is best fitted. The Faculty Advisers and the Counseling Service staff use these tests to help students solve their educational and personal problems.

The work of the University is divided so that when a student decides upon a general field of studies or a vocation, he is guided into a program of courses fitted to his purpose. Such a program is called a *curriculum.* The student who chooses the General Liberal Arts curriculum takes several courses in the subject he chooses as his *major*, but also is allowed to elect many other courses to broaden his education. The student who chooses certain of the Engineering curriculums, on the other hand, is confined principally to courses prescribed for him, all of which are technical or scientific except for a course or two in English. The other curriculums fall between these two extremes.

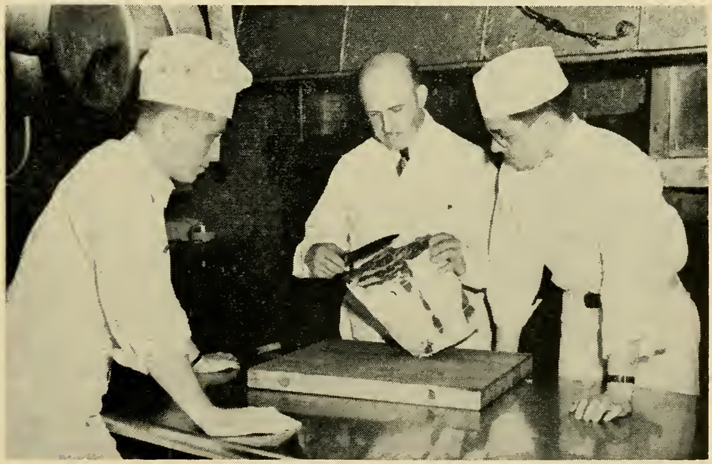
Required Courses — Certain courses are required of all students in the University. English 1-2 is required of all students in the Freshman year. During their first six semesters of attendance women students are required to take Physical Education. All men students, except those who have been in the military service, are required to take Physical Education and Military Science during their first four semesters.

CURRICULUMS — THE COLLEGES

For convenience in administration, the undergraduate work of the University of New Hampshire is divided into three Colleges: Agriculture, Liberal Arts, and Technology.

Agriculture — The *College of Agriculture* offers curriculums planned to prepare the student for farming and for industries and sci-

Students in Poultry Husbandry dress birds for market.



Practical laboratory work in Hotel Administration program.

entific work associated with agriculture. The Home Economics and Forestry curriculums are also part of the work under the immediate supervision of the College of Agriculture. It is not essential in every instance that the student have an interest in applied agriculture. All curriculums offer a general education and training in the basic sciences. The student should not only determine the curriculum for which he possesses the greatest interest and aptitude but should also consider the opportunities, whether farming, extension, research, teaching, industry and commerce, or civil service. The curriculums are:

Agricultural and Biological Chemistry
Agricultural Economics
Agricultural Engineering*
Agronomy
Animal Husbandry
Botany
Dairy Husbandry
Entomology
Forestry
General Agriculture
General Home Economics
Horticulture
Hospital Dietetics
Institutional Administration
Mechanized Agriculture
Poultry Husbandry
Pre-Veterinary
Teacher Preparation in Agriculture
Teacher Preparation in Home Economics

For those lacking the time or the preparation for a four-year curriculum in Agriculture, the University maintains a two-year course called Applied Farming. Those interested in this course should write for the special bulletin describing it.

The Freshman in Agriculture enrolls for one-year courses in English, General Chemistry, and Mathematics, including Algebra and Trigonometry; and semester courses in Botany and Zoology. Each Freshman also has one elective.

In order to complete the requirements for a degree from the College of Agriculture a student must obtain, in addition to the required Freshman work, credit in each of several areas. These additional minimum requirements covering the four years of study follow: Biological Sciences, 3 semester credits; Chemistry, 5 semester credits; Economics, 6 semester credits; English, 5 semester credits; Physics, 4 semester credits; and Social Sciences, 6 semester credits. Much of the work a student takes beyond that needed to meet the foregoing general requirements is in the field of his specialization.

Typical courses in the various fields include:

Agricultural and Biological Chemistry — biological chemistry, chemistry of plant growth, chemistry of human and animal nutrition, physiological chemistry, agricultural analysis.

Agricultural Economics — farm accounting, farm management, co-operative business, marketing, agricultural policy.

Agronomy — soils, fertilizers, cereal crops, potatoes, forage crops, seed testing, soil conservation, soil physics, soil chemistry.

Agricultural Engineering — agricutural power and machinery, agricultural shop, agricultural structures, calculus, surveying, soil and water engineering, machine drawing, kinematics, mechanics, thermodynamics and electrical machinery.

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*A curriculum with requirements paralleling those of the College of Technology.

Animal Husbandry — types of livestock, livestock judging, feeds and feeding, anatomy, diseases, meat products, animal breeding.

Botany — general botany, plant anatomy and cytology, systematic botany, plant pathology, plant physiology, and plant ecology.

Dairy Husbandry — fundamentals of dairying, dairy cattle, market milk, ice cream, butter and cheese, dairy bacteriology, judging, milk production.

Entomology — economics entomology, insects of orchard and garden, forest insects, medical entomology.

Forestry — tree and wood identification, silviculture, forest protection, forest mensuration, use of air photos, forest utilization, forest recreation, forest management, wildlife management.

Mechanized Agriculture — farm shop, farm structures, farm wiring and electrical equipment, farm power and machinery.

Home Economics — clothing and textiles, food and nutrition, child development, home management, institutional management, hospital dietetics, home economics education, and extension.

Horticulture — vegetable gardening, judging, ornamental woody plants, elementary landscape gardening, floral arrangement, greenhouse management, beekeeping, orchard fruits, small fruit culture, commercial vegetable production, plant breeding and propagation.

Poultry Husbandry — farm poultry, poultry breeding, judging, incubation and brooding, marketing, feeding, housing, poultry management, poultry diseases, turkey production.

Liberal Arts — The offerings of the *College oj Liberal Arts* fall into two groups. The student who elects the General Liberal Arts curriculum is given the opportunity to secure a broad general education in such divisions of learning as social science, the humanities, biological science, and physical science. Each student pursuing the General Liberal Arts curriculum must pass a reading test in a foreign language before graduation. A major may be taken in any of the following subjects: Arts, Bacteriology, Biology, Botany, Chemistry, Economics, Education, English, Entomology, Geology, Government, History, History and Literature, Home Economics, Foreign Languages, Mathematics, Music, Physics, Psychology, Sociology, or Zoology.

In his first year, a student following the General Liberal Arts curriculum will take in addition to Physical Education and (if a male) Military Science, Introduction to Contemporary Civilization, Freshman English, and a course in either biology or a physical science chosen from chemistry, geology, mathematics, or physics. His fourth course usually will be exploratory, an introductory course in the field in which he may decide to major.

Programs in Music and The Arts attract many students.

In his Sophomore Year, the General Liberal Arts student will continue a broadening education by fulfilling what are known as *Sophomore Group Requirements.* These require each student to take a year's work in each of the following three groups:

Group I	*Group II*	*Group III*
Introduction to The Arts	Biology	Economics
English Literature	Chemistry	Government
American Literature	Geology	Psychology
Humanities	Mathematics	Sociology
Foreign Languages	Physics	
Appreciation of Music		
Philosophy		

A student may choose a major at the end of his Freshman Year, or he may prostpone his decision as late as the end of the Sophomore Year. A minimum of 24 semester credits is required in the major, though some majors may require one or more additional courses which do not count for major credit. The General Liberal Arts curriculum is intended to provide a concentration in a limited area but in no sense is it designed to prepare students completely for a specific vocation.

The second group of offerings in the College of Liberal Arts includes several curriculums, giving preparation for certain vocations.

These curriculums are:

Business with Accounting Option
Hotel Administration
Medical Technology
Nursing
Occupational Therapy
Pre-Medical
Secretarial
Social Service
Teacher Preparation: Art, Commercial Subjects, Home Economics, Music, and Physical Education for Men and Physical Education for Women including a Recreation Option.

During the Freshman Year, students following one of the prescribed curriculums take courses or have programs of courses very similar to those of students following the General Liberal Arts curriculum. The first year, those who are going into scientific fields usually take two sciences instead of one. In general, however, *the work of the first year is broadening, rather than specialized.* Students following a prescribed curriculum are not held for the language reading requirement but an attempt is made to broaden the curriculums by including one year's work in the Humanities and six semester credits in Social Science. Required courses in the various prescribed curriculums in the Sophomore, Junior, and Senior Years are as follows, the numbers indicating the semester hours. (The balance of a student's load is made up of electives.)

Business

	credits		credits
Accounting	8	Commercial Law	6
U. S. Economic History	3	Marketing	3
Introduction to Business	3	Public Speaking	3
Business Communication	3	Money and Banking	3
Personnel Administration	3	Business Management	3
Corporation Finance	3	Humanities	6
Economic and Business Statistics	3	Labor Economics	3
		Social Science	6
Principles of Economics	6	Electives from Economics and Business Administration	12

Students choosing the *Accounting Option* in the Business curriculum take all the foregoing courses except Business Management, Labor Economics, the 12 credits in departmental electives, and in addition:

Intermediate Accounting, 6 credits; Cost Accounting, 6; Advanced Accounting, 6; Federal Tax Accounting, 3; Auditing, 3; and Accounting Systems, 3.

Hotel Administration

Freshman

	credits		credits
Hotel Orientation	½	Elementary Drafting	2
Chemistry or Biology	8		

Sophomore - Junior - Senior

	credits		credits
Elementary Accounting	8	Foods	6
Hotel Accounting	6	Quantity Cookery	4
Hotel Engineering	3	Psychology	3
Hotel Lectures	1½	Furniture and Textiles	3
Hotel Operation	3	Circuits and Appliances	4
Principles of Economics	6	Heating and Ventilating	2
Commercial Law	6	Social Science	6
Humanities	6	Introductory Physics	8

Medical Technology

	credits		credits
Mathematics	6	General Bacteriology	4
Quantitative Analysis	4	Pathogenic Bacteriology	4
Organic Chemistry	5	Immunology and Serology	4
Physiological Chemistry	5	Introductory Physics	8
Human Anatomy-Physiology	8	Humanities	6
		Social Science	6

Students in this curriculum normally spend seven semesters on campus then register for Biology 62 and complete one year in an approved hospital laboratory under supervision. When all the requirements for the B.S. degree have been completed, the student, normally, will also be eligible for the "Medical Technologists" examination for certification.

NURSING

	credits		credits
Human Anatomy-Physiology	6	Humanities	6
Histology	4	Social Science	6
Organic Chemistry	5		

Three years on campus are followed by a three-year training period in an approved hospital.

OCCUPATIONAL THERAPY

Freshman

	credits		credits
Sociology	6	Biology	8
Drawing and Design	4		

Sophomore - Junior - Senior

	credits		credits
Crafts	11	Elementary Drawing and Design	4
Floriculture	3	Elementary Processes in Woods and Plastics	4
Elementary Photography	3	Library Methods	1
Ceramics, Modeling and Puppetry	4	Child Development	6
General Psychology	3	Clinical Subjects	4
Mental Hygiene	3	Neurology	4
Psychopathology	3	Kinesiology	3
Human Anatomy-Physiology	8	Humanities	6
Lettering and Printing	2	Social Science	6
Theory of Occupational Therapy	8		

PRE-MEDICAL CURRICULUM

	credits		credits
Social Science	12	Physics	8
Mathematics	6	Organic Chemistry	10
Comparative Anatomy	8	Advanced Zoology	4
General Zoology and Analysis	8	Language	6
Quantitative and Qualitative		Humanities	6

SECRETARIAL CURRICULUM

	credits		credits
Shorthand	12	Business Writing	6
Typing	8	U. S. Economic Development	3
Filing	2	Principles of Economics	6
Office Machines	2	Accounting	8
Office Procedure and Practice	6	Social Science	6
Humanities	6		

SOCIAL SERVICE CURRICULUM

	credits
General Psychology	3
Mental Hygiene	3
Microbiology	3
Social Pathology	3
Community Organization	3
Crime and Its Treatment	3
The Family	3
Methods of Social Research	3
Introduction to Social Work	3
Sociological Research	6
Social Field Work	6
Recreation and Leisure	3
Methods of Social Progress	3
Public Health	3
Humanities	6
Social Science	6

TEACHER PREPARATION COURSE

This program is for those who are preparing to teach any of the usual academic subjects, such as languages, English, mathematics, science, or social science.

	credits
Major Teaching Subject	24
First Minor Teaching Subject	12
Second Minor Teaching Subject	12
Principles of Secondary Education	3
Educational Psychology	6
Principles of Teaching in Secondary Schools	4
Special Methods	3-6
Supervised Teaching	6-12

ART EDUCATION CURRICULUM

	credits
Educational Psychology	6
Principles of Secondary Education	3
Problems of Teaching Art	6
Supervised Teaching	6-12
Introduction to The Arts	6
Humanities	6
Social Science	6
Ceramics	4
Drawing and Design	10
Painting	9
Stagecraft	1
Crafts	3
Principles of Teaching in Secondary Schools	4

MUSIC EDUCATION CURRICULUM

	credits
Principles of Teaching in Secondary Schools	4
Educational Psychology	6
Sight Singing and Ear Training	4
Harmony	8
Music History and Literature	4
Applied Music	16
Music Organizations	3
Principles of American Secondary Education	3
French, German or Italian	6
Principles of Conducting	2
Social Science	6
Problems of Elementary School Music	3
Problems of Secondary School Music	3
Orchestration and Chorestration	4
Supervised Teaching in Elementary Schools	3-6
Supervised Teaching in Secondary Schools	3-6
Teaching of Brass, Strings, and Woodwinds	6

Physical Education Teacher Preparation for Men

	credits		credits
Educational Psychology	6	Administration of Physical Education	3
Principles of American Secondary Education	3	Supervised Teaching	6-14
Principles of Teaching in Secondary Schools	4	Human Anatomy-Physiology	6
Major Teaching Subject	24	Principles of Physical Education	3
Minor Teaching Subject	12	Problems of Coaching	8
Directed Teaching in Physical Education	3	Social Science	6
Humanities	6		

Physical Education Teacher Preparation for Women

	credits		credits
Educational Psychology	6	Theory of Individual Sports	2-4
Principles of American Secondary Education	3	Recreation Leadership	3
Major Teaching Subject	18	Human Anatomy-Physiology	6
Principles of Physical Education	3	Administration of Physical Education for Women	3
Theory of Team Sports	4	Practice Teaching	6-12
Humanities	6	Remedial Gymnastics	3
Social Science	12	Kinesiology	3
Problems of Teaching Physical Education for Women	3	Survey of Dance	4
		Health Education	3

Students who desire to prepare themselves as playground directors, etc., may elect to follow the *Recreation Option.* In the Junior and Senior years this option substitutes for certain courses in the Physical Education Teacher Preparation program the requirements of:

	credits		credits
Stagecraft	½	Field Biology and Nature Study	3
Crafts	2	Music Appreciation	2
Dramatic Workshop	3	Community Organization	3
Organized Camping	3	Humanities	12
		Social Science	12

Interested students may pursue courses which give training in the areas of Applied Biology, Biological Laboratory Technique, and Pre-Dentistry. For a number of professions such as law, teaching, library work, and so on, the student who can afford it will be better prepared if he takes a four-year Liberal Arts course and then gets his professional training on the graduate level. *A student who is interested in a combination of courses not listed in a regular curriculum will find it easier to arrange what he wants in the College of Liberal Arts than in either of the other Colleges.*

Technology — *The College of Technology* offers curriculums in Building Construction, Chemistry, Physics, and the various branches of Engineering. Mathematics and the physical sciences are basic for all Engineering curriculums. Students who have not done well in these subjects in high school will find it difficult to carry the work in this field. The College of Technology curriculums are:

- Building Construction
- Chemical Engineering
- Chemistry
- Civil Engineering
- Electrical Engineering
- Mechanical Engineering
- Physics

The Freshman Year for all curriculums in the College of Technology includes Algebra, Trigonometry, Analytic Geometry, Introduction to Calculus, General Chemistry, Engineering Drawing, and English. The civil engineering and building construction majors have Surveying in the second semester. Elements of German Grammar is required for chemistry majors.

Special subject requirements of the Sophomore, Junior, and Senior Years in Technology follow:

BUILDING CONSTRUCTION

Sophomore Year

	credits		*credits*
Domestic Archietecture	4	Geology	2
Surveying	3	Calculus	6
Economics	6	General Physics	12

Junior Year

	credits		*credits*
Accounting	8	Theory of Structures	8
Building Construction	6	Fundamentals of Electricity	4
Engineering Materials	3	Mechanics	7

Senior Year

	credits		*credits*
Professional Practices	6	Reinforced Concrete Structures	4
Community Planning	3	Marketing	3
Soil Mechanics and Foundations	3	Heat Power Engineering	3
Structural Design	4	Heating and Air Conditioning	2

CHEMICAL ENGINEERING

Sophomore Year

	credits
Semi-micro Qualitative Analysis	4
Quantitative Analysis	5
Calculus	6

	credits
General Physics	12
Economics	6

Junior Year

	credits
Organic Chemistry	10
Stoichiometry	2
Techanical Quantitative Analysis	3
Unit Processes	4
Physical Chemistry	10
Unit Operations	3
Mechanics, or Elective	8

Senior Year

	credits
Unit Operations	3
Chemical Engineering Economics	3
Unit Operations Laboratory	3
Chemical Engineering Thermodynamics	3
Chemical Engineering Project	5
Fundamentals of Electricity	4
Chemical Literature and Seminar	2
Chemical Plant Design	3

CHEMISTRY

Sophomore Year

	credits
Semi-micro Qualitative Analysis	4
Quantitative Analysis	5
General Physics	12
Calculus	6

Junior Year

Organic Chemistry	10
Stoichiometry	2
Technical Quantitative Analysis	3
Instrumental Analysis	4
Physical Chemistry	10
Government 1, 4 or Elective	6

	credits
Scientific German, Economics, History, English, Business Administration	6

Senior Year

Organic Chemistry	6
Physical Chemistry	6
Chemical Literature and Seminar	2
Thesis	10
Electives	12

CIVIL ENGINEERING

Sophomore Year

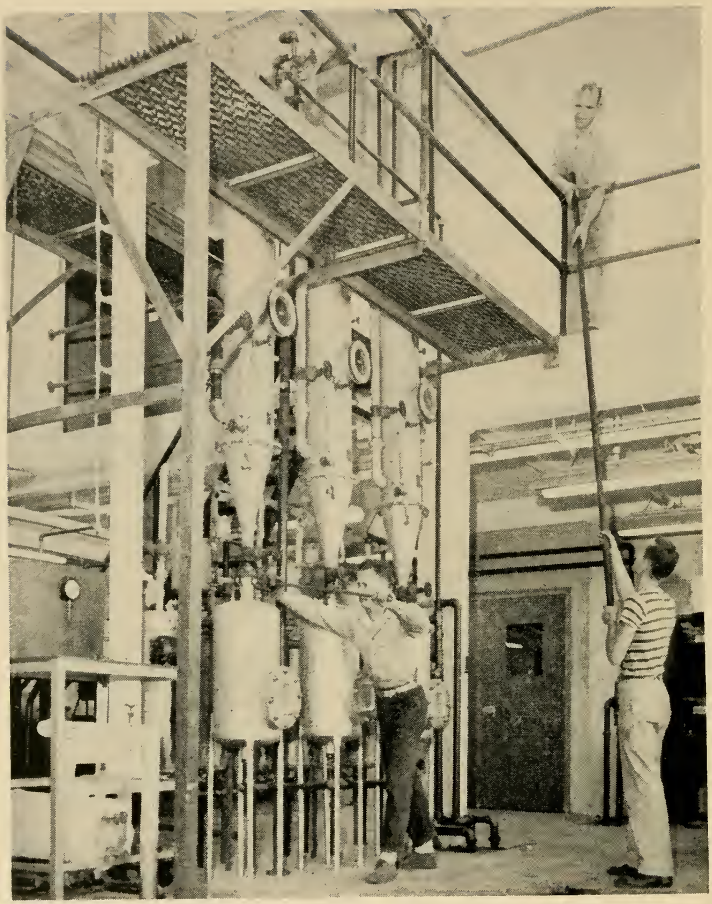
	credits
Surveying	9
Calculus	6

	credits
General Physics	12
Route Surveying	3

Junior Year

	credits
Engineering Materials	3
Fluid Mechanics	4
Theory of Structures	8
General Geology	2

	credits
Mechanics	7
Heat Power Engineering	3
Fundamentals of Electricity	4
Economics	6



Installing equipment in Kingsbury Hall's Chemical Engineering laboratory.

Senior Year

	credits		*credits*
Highway Engineering and Transportation	4	Structural Design	4
Soil Mechanics and Foundations	3	Reinforced Concrete Structures	4
Hydraulic and Sanitary Engineering	9	Writing of Technical Reports	2

ELECTRICAL ENGINEERING

Sophomore Year

	credits		credits
Calculus	6	Kinematics	3
General Physics	12	Economics	6
Electrical Engineering	7		

Junior Year

	credits		credits
Electrical Laboratory	4	Mechanics	8
Electrical Engineering	6	Heat Power Engineering	6
Electrical Circuits	3	Mechanical Laboratory	2
Electronic Tubes	4	Differential Equations	3

Senior Year

	credits		credits
Electronics and Communications	4	*Advanced Electronics	4
Illumination	2	Electrical Measurements	3
Electrical Laboratory	4	Fluid Mechanics	3
Electrical Engineering	3	Writing of Technical Reports	2
*Advanced Circuit Theory	4	Industrial Management	3
*Electrical Laboratory	4	Engineering Economy	3

MECHANICAL ENGINEERING

Sophomore Year

	credits		credits
Calculus	6	Machine Shop	2
General Physics	12	Economics	6
Machine Drawing	2		
Kinematics	3		

Junior Year

	credits		credits
Electrical Machinery	8	Mechanical Laboratory	3
Mechanics	8	Elementary Metallurgy	3
Thermodynamics	6	Fluid Mechanics	3

Senior Year

	credits		credits
Machine Design	6	Internal Combustion Engines	6
Heating and Ventilating	2	Industrial Management	3
Mechanical Laboratory	2	Engineering Economics	3
Power Plants	5	Writing of Technical Reports	2

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*Elective

TECHNOLOGY CURRICULUM IN PHYSICS

Sophomore Year

	credits		*credits*
Calculus	6	General Physics	12
German	6	Economics	6

Junior Year

	credits		*credits*
Applied Mathematics, Differential Equations	6	Theory of Electricity and Magnetism	8
Optics	4	Physical Mechanics	6
Heat	4		

Senior Year

	credits		*credits*
Modern Physical Theories	6	Electrical Discharge Through Gases	4
Theoretical Physics	6	Advanced Calculus	6
Advanced Laboratory	4		

THE GRADUATE SCHOOL

Albert F. Daggett, *Dean*

Objectives

The Graduate School, which has offered instruction since 1903, has for its objective the bringing together of Faculty and qualified students in a spirit of scholarship and research. The graduate student is given opportunity to specialize in some field of knowledge, and to develop a maturity of thought and attitude toward his professional field, so that both his professional and his cultural life are enhanced. Graduate work is offered by members of the University departments of instruction and research. Administrative functions and supervision of advanced students are delegated to the Dean of the Graduate School and the Executive Council.

Degrees

Graduate programs are offered by the following departments: Agricultural and Biological Chemistry, Agricultural Economics, Agronomy, Animal Husbandry, Bacteriology, Biology, Botany, Chemical Engineering, Chemistry, Civil Engineering, Dairy Husbandry, Electrical Engineering, Entomology, Horticulture, Mathematics, Mechanical Engineering, Physics, Poultry Husbandry, and Zoology leading to the Master of Science degree; Economics, English, Government, History, Languages, Mathematics, Psychology, and Sociology leading to the Master of Arts degree; and Education leading to the Master of Education degree.

Assistantships and Scholarships

Graduate assistantships are available in a number of departments. The work required may be in the nature of research, teaching, or general service. For information regarding assistantships, one should direct inquiries to the chairman of the department concerned.

A limited number of graduate scholarships are available each year. The recipient of such a scholarship is exempted from the payment of tuition. Requirements for the awards are: 1) A superior undergraduate record, and 2) the successful completion of a qualifying examination administered by the University Counseling Service. For information concerning graduate scholarships one should direct inquiries to the Dean of the Graduate School.

Information

For detailed information concerning admission, requirements for degrees, description of courses open to graduate students, and other matters not covered above, interested persons are invited to direct inquiries to the Dean of the Graduate School. The Graduate School issues its own bulletin which may be obtained upon request to the Office of the Graduate School.

OFFICERS OF ADMINISTRATION

Robert F. Chandler, Jr., President of the University

Doris Beane, University Recorder

Laurence A. Bevan, Director of Agriculture and Home Economics Extension Service

Edward Y. Blewett, Dean of the the College of Liberal Arts

Thelma Brackett, Librarian

Jere A. Chase, Director of Admissions

Albert F. Daggett, Dean of the Graduate School and Co-ordinator of Research

Walton E. Devine, Assistant Treasurer

Edward D. Eddy, Jr., Assistant to the President

Harold C. Grinnell, Dean of the College of Agriculture and Director of the Agricultural Experiment Station

Eric T. Huddleston, Supervising Architect

Harold I. Leavitt, Superintendent of Properties

John A. MacDonald, Acting University Physician and Acting Director of the Student Health Service

Raymond C. Magrath, Treasurer

Paul H. McIntire, Acting Director of Counseling

William A. Medesy, Dean of Men

Herbert J. Moss, Secretary of the University

Donald H. Richards, Director of Placement

William L. Prince, University Alumni Secretary

Francis E. Robinson, Director of Public Information

Everett B. Sackett, Dean of Student Administration

Paul E. Schaefer, Assistant Dean of the College of Liberal Arts

Lauren E. Seeley, Dean of the College of Technology and Director of the Engineering Experiment Station

Henry B. Stevens, Director of the University Extension Service

George R. Thomas, Director of the Summer Session

Ruth J. Woodruff, Dean of Women

SUMMARY OF REGISTRATION

	AGRICULTURE				LIBERAL ARTS				TECHNOLOGY				MISCELLANEOUS				TOTAL											
																	MEN				WOMEN				BOTH			
	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47	1949–50	1948–49	1947–48	1946–47
Senior	84	73	44	33	594	496	446	311	176	191	123	61					697	596	391	219	157	164	222	186	854	760	613	405
Junior	78	92	73	47	499	644	552	443	139	209	234	136					542	769	695	379	174	176	164	247	716	945	859	626
Sophomore	97	90	118	76	568	540	816	648	98	181	296	329					541	598	995	840	222	213	235	213	763	811	1230	1053
Freshman	142	80	77	137	683	570	590	870	216	182	257	407					737	594	688	1173	304	238	236	237	1041	832	924	1410
Special	12	20	6	9	141	55	102	71	8	5	6	9			12	14	85	32	51	59	76	48	75	44	161	80	126	103
Graduates													251	241	122	143	219	196	89	104	32	45	33	39	251	241	122	143
Total — regular curriculums	413	355	318	302	2485	2305	2506	2343	637	768	916	938	251	241	134	157	2821	2785	2909	2774	965	884	965	966	3786	3669	3874	3740
Non-degree curriculums																												
2nd yr.	55	37	39	18				8									54	37	39	16	1			10	55	37	39	26
1st yr.	77	78	62	60													76	77	60	59	1	1	2	1	77	78	62	60
Total	132	115	101	78				8									130	114	99	75	2	1	2	11	132	115	101	86
Summer School													1184	1334	1626	1194	770	973	1228	852	414	361	398	342	1184	1334	1626	1194
Extension courses													494	687	403	396	275	344	217	330	219	343	186	66	494	687	403	396
Total—short curriculums	132	115	101	78				8					1678	2021	2029	1590	1175	1431	1544	1257	635	705	586	419	1810	2136	2130	1676
Grand Total	545	470	419	380	2485	2305	2506	2351	637	768	916	938	1929	2262	2163	1747	3996	4216	4453	4031	1600	1589	1551	1385	5596	5805	6004	5416
Less Duplicates													422	605	868	739	354	535	803	653	68	70	65	86	422	605	868	739
NET GROSS TOTAL	545	470	419	380	2485	2305	2506	2351	637	768	916	938	1507	1657	1295	1008	3642	3681	3650	3378	1532	1519	1486	1299	5174	5200	5136	4677

The curriculums included in the three colleges are: Agriculture: Agricultural Chemistry, Agricultural Economics, Agricultural Engineering, Agronomy, Animal Husbandry, Dairy Husbandry, Entomology, Forestry, General, Home Economics, Horticulture, Poultry Husbandry, Pre-Veterinary, and Teacher Training; Liberal Arts: Art Education, Business, General, General Home Economics, Hotel Administration, Music Education, Nursing, Occupational Therapy, Physical Education, Secretarial, Social Service, Teacher Training, Pre-Medical; Technology: Building Construction, Chemistry, Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering and Physics.

Vol. XLII April 1951 No. 8

BULLETIN of the University of New Hampshire

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THE UNIVERSITY BULLETIN INCLUDES:

The Catalogue Issue of the University

The Report of the President Issue

The Financial Report Issue

The Catalogue Issue of the Summer Session

The Catalogue Issue of the Graduate School

and other publications of the University of New Hampshire

Correspondence in regard to the University should be addressed to the following:

General Information, Secretary of the University

Admission and Catalogue, Director of Admissions

Summer Session, Director of Summer Session

Agricultural and Home Economics Extension, Director of Agriculture and Home Economics Extension Service

Alumni Activities, Alumni Office

University Extension, Director of University Extension Service

Graduate School, Dean of the Graduate School

Two-Year Course in Agriculture, Office of Applied Farming

CALENDAR

1951

JULY

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OCTOBER

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DECEMBER

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1953

JANUARY

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FEBRUARY

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MARCH

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JUNE

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UNIVERSITY OF NEW HAMPSHIRE CALENDAR
1951-52

1951 Summer Session

July 2	Monday	Summer Session Registration
July 4	Wednesday	Holiday, no classes
July 7	Saturday	Classes meet to make up day lost on July 4
Aug. 10	Friday	Summer Session closes

First Semester 1951

Sept. 18	Tuesday	Orientation Week begins
Sept. 24	Monday	Registration Day
Sept. 25	Tuesday	Classes begin at 8:00 A. M.
Nov. 13	Tuesday	Mid-Semester Reports to be filed, 5:00 P. M.
Nov. 21 Nov. 26	Wednesday- Monday	Thanksgiving Recess Wednesday, 12:00 noon to Monday, 8:00 A.M.
Dec. 15	Saturday	Christmas Recess begins at 12:00 noon

1952

Jan. 3	Thursday	Christmas Recess ends at 8:00 A. M.
Jan. 19	Saturday	Preparation Day, no classes
Jan. 21 Feb. 1	Monday- Friday	Examination Period

Second Semester

Feb. 4	Monday	Classes begin at 8:00 A. M.
Feb.	Friday- Saturday	Winter Carnival — no classes Friday, 1:00 P. M. to Monday, 8:00 A. M.
March 11	Tuesday	Town Meeting, classes excused 10:00 A. M. to 1:00 P. M.
March 18	Tuesday	Mid-Semester Reports to be filed, 5:00 P. M.
April 5	Saturday	Spring Recess begins at 12:00 noon
April 15	Tuesday	Spring Recess ends at 8:00 A. M.
May 24	Saturday	Preparation Day, no classes
May 26	Monday	Examinations begin
May 30	Friday	Memorial Day, holiday
June 7	Saturday	Examinations end
June 8	Sunday	Commencement
June 13-15	Friday	Alumni Weekend

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COLLEGE OF LIBERAL ARTS 55–104

Purpose and Objectives; Organization; General Liberal Arts Curriculum; Other Programs of Study; Prescribed Curriculums; Teacher Preparation Programs; A Plan for Independent Study; Requirements for Degrees.

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DESCRIPTION OF COURSES

FOREWORD

This issue of the Bulletin of the University of New Hampshire is designed as a handbook of information for the students, faculty, and officers of administration. It provides the detailed description of curriculums, courses, and requirements on the basis of which all courses of study are determined.

Information about the history of the University, its general philosophy and objectives, its buildings and equipment, its student personnel services, student organizations, methods of admission to the University, student fees and expenses, and financial aid, including scholarships, is published in the December, 1950 issue of the Bulletin, **Announcements, 1951-1952.**

BOARD OF TRUSTEES

His Excellency, Governor Sherman Adams, a.b., ll.d., *ex officio*

Perley I. Fitts, b.s., Commissioner of Agriculture, *ex officio*

President Robert F. Chandler, Jr., ph.d., *ex officio*

Frank W. Randall, b.s., ll.d., President — Portsmouth, N. H.
July 1, 1936 to June 30, 1952

Arthur E. Moreau, a.m., — Manchester, N. H.
September 14, 1944 to June 30, 1951

Laurence F. Whittemore, m.a., ll.d., Vice-President — Pembroke, N. H.
September 14, 1944 to June 30, 1952

Mary S. Brown — Center Sandwich, N. H.
December 20, 1944 to June 30, 1951

Austin I. Hubbard, b.s., Secretary — Walpole, N. H.
December 20, 1944 to June 30, 1953

*Albert S. Baker, b.s., — Concord, N. H.
July 1, 1948 to June 30, 1952

*Anna L. Philbrook, m.d., — Dunbarton, N. H.
July 1, 1949 to June 30, 1951

Ernest W. Christensen, b.s., — Dover, N. H.
July 1, 1949 to June 30, 1953

Maurice F. Devine, ll.b., ll.d., — Manchester, N. H.
July 1, 1950 to June 30, 1954

George L. Frazer — Monroe, N. H.
July 1, 1950 to June 30, 1954

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*Elected by Alumni.

OFFICERS OF ADMINISTRATION

Robert F. Chandler, Jr., President of the University

Doris Beane, University Recorder

Laurence A. Bevan, Director of Agriculture and Home Economics Extension Service

Edward Y. Blewett, Dean of the the College of Liberal Arts

Thelma Brackett, Librarian

Jere A. Chase, Director of Admissions

Albert F. Daggett, Dean of the Graduate School and Co-ordinator of Research

Walton E. Devine, Assistant Treasurer

Edward D. Eddy, Jr., Assistant to the President

Harold C. Grinnell, Dean of the College of Agriculture and Director of the Agricultural Experiment Station

Eric T. Huddleston, Supervising Architect

Harold I. Leavitt, Superintendent of Properties

John A. MacDonald, Director ofthe University Health Service

Raymond C. Magrath, Treasurer

Paul H. McIntire, Acting Director of Counseling

William A. Medesy, Dean of Men

Herbert J. Moss, Secretary of the University

Donald H. Richards, Director of Placement

William L. Prince, University Alumni Secretary

Francis E. Robinson, Director of Public Information

Everett B. Sackett, Dean of Student Administration

Paul E. Schaefer, Assistant Dean of the College of Liberal Arts

Lauren E. Seeley, Dean of the College of Technology and Director of the Engineering Experiment Station

Henry B. Stevens, Director of the University Extension Service

George R. Thomas, Director of the Summer Session

Ruth J. Woodruff, Dean of Women

THE UNIVERSITY FACULTY AND STAFF

ROBERT F. CHANDLER, JR., *President of the University*
B.S., University of Maine, 1929; Ph.D., University of Maryland, 1934. (1947-)

BATCHELDER, LYMAN J., *Instructor Emeritus in Mechanical Engineering, Woodshop.* (1915-)

BAUER, GEORGE N., *Professor Emeritus of Mathematics*
B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898; Ph.D., Columbia University, 1900. (1924-)

BISBEE, HARLAN M., *Associate Professor Emeritus of Education*
A.B., Bowdoin College, 1898; A.M., Harvard University, 1905. (1928-)

CASE, GEORGE W., *Dean Emeritus of the College of Technology, Director Emeritus of the Engineering Experiment Station and Professor Emeritus of Mechanical Engineering*
B.S., Purdue University, 1905; M.C.E., Cornell University, 1912. (1925-)

EASTMAN, M. GALE, *Professor Emeritus of Agriculture*
B.S., New Hampshire College, 1913; M.S., Cornell University, 1916, Ph.D., *ibid.*, 1931. (1918-)

HENDERSON, OREN V., *Registrar Emeritus*
Valparaiso University. (1914-)

†O'KANE, WALTER C., *Professor Emeritus of Economic Entomology*
B.A., Ohio State University, 1897; M.A., *ibid.*, 1909; D.Sc. (Hon.) *ibid.*, 1932. (1909-)

RITZMAN, ERNEST G., *Research Professor Emeritus of Animal Husbandry*
B.S.A., Iowa State College, 1903; M.S. (Hon.), University of New Hampshire, 1928. (1915-)

SANBORN, MARY L., *Assistant State Club Leader Emeritus*
Oread Institute, 1904. (1915-)

SCUDDER, HAROLD H., *Professor Emeritus of English*
B.S., Dartmouth College, 1903. (1913-)

SLOBIN, HERMON L., *Dean Emeritus of the Graduate School and Professor Emeritus of Mathematics*
A.B., Clark University, 1905; Ph.D., *ibid.*, 1908 (1919-)

SMITH, LUCINDA P., *Associate Professor Emeritus of English*
A.B., Colby College, 1901; M.A., Boston University, 1934. (1919-)

SMITH, MELVIN M., *Associate Professor Emeritus of Chemistry*
A.B., Colby College, 1899; A.M., *ibid.*, 1893. (1917-)

SMITH, TODD O., *Research Assistant Professor Emeritus of Agricultural and Biological Chemistry*
A.B., Indiana University, 1910; M.S., New Hampshire College, 1917. (1910-)

TAYLOR, FREDERICK W., *Director Emeritus of Agricultural Service Departments of the College of Agriculture*
B.S., Ohio State University, 1900. (1903-)

TONKIN, JOHN C., *Instructor Emeritus in Mechanical Engineering, Machine Shop* (1910-12, 1924-)

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†*Indicates part time devoted to Agricultural Experiment Station.*

*Indicates part time devoted to Extension Service in Agriculture and Home Economics.

Abbott, Helen D., *Head Cataloguer*
A.B., Wheaton College, 1929; S.B. in L.S., Simmons College, 1930; A.M., Middlebury College, 1939. (1943-)

Abell, Max F., *Extension Associate Professor of Agricultural Economics*
B.S., Cornell University, 1914; Ph.D., *ibid.*, 1924. (1926-)

Adams, Harold W., *Assistant Editor for Agricultural and Home Economics Extension Service*
B.S., University of New Hampshire, 1949. (1949-)

Adams, Eloi A., *Agricultural Agent in Strafford County*
B.S., New Hampshire College, 1918. (1919-)

Adams, Richard O., *Part-time Instructor in Chemistry*
B.S., University of New Hampshire, 1950. (1950-)

Adkins, Mildred, *Lecturer in Zoology*
B.A., Teachers College, Columbia University, 1926; M.A., *ibid.*, 1929. (1947-)

†**Allen, Fred E.**, *Associate Professor of Poultry Husbandry, and Veterinarian, Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; D.V.M., Ohio State University, 1936. (1940-)

Allen, M. Jean, *Assistant Professor of Zoology*
A.B., Miami University, 1941; M.Sc., Ohio State University, 1942; A.M., Radcliffe College, 1943; Ph.D., *ibid.*, 1946. (1948-)

Ames, Dennis B., *Professor of Mathematics*
B.A., Bishops' University, 1927; M.A., *ibid.*, 1928; Ph.D., Yale University, 1931. (1949-)

Anderson, Charlotte K., *Assistant Librarian and Documents Librarian*
B.A., University of Michigan, 1935; B.A. in L.S., *ibid.*, 1936. (1943-)

Armstrong, John B., *Cataloguer*
B.S., University of Pittsburgh, 1949; M.L.S., Carnegie Library School, 1950. (1950-)

Atkinson, Edward R., *Associate Professor of Chemistry*
B.S., Massachusetts Institute of Technology, 1933; Ph.D., *ibid.*, 1936. (1938-)

Babcock, Donald C., *Professor of Philosophy*
B.A., University of Minnesota, 1907; M.A., *ibid.*, 1908; S.T.B., Boston University, 1912. (1918-)

Badger, Margaret M., *Instructor in Physical Education for Women and Extension Recreation Specialist*
B.S., University of New Hampshire, 1949. (1949-)

Bailey, Arlene F., *Assistant Club Agent in Strafford County*
B.S., University of New Hampshire, 1950. (1950-)

Baird, John E., *Extension Lecturer in Speech and Assistant in Liberal Arts Extension.*
B.Th., Northwest Christian College, 1944; B.A., College of the Pacific, 1947; M.A., *ibid.*, 1948. (1948-)

Balch, Donald J., *Instructor in Applied Farming*
B.S., University of New Hampshire, 1948. (1950-)

Ballard, Horace C., *Agricultural Agent in Belknap County*
B.S., Cornell University, 1936. (1949-)

Bamberg Karl P., *Club Agent in Hillsborough County*
B.S., Iowa State College, 1944. (1946-)

Barmby, Edna F., *Associate Club Agent in Merrimack County*
B.S. in Ed., Framingham State Teachers College, 1948. (1948-)

Barraclough, Kenneth E., *Extension Assistant Professor of Forestry*
B.S., New York State College of Forestry, Syracuse University, 1921; M.F., Harvard University, 1940. (1926-)

Bartley, Clara H., *Assistant Professor of Bacteriology*
B.S., Miami University, 1923; M.A. University of Michigan, 1926; Ph.D., University of Kansas, 1935. (1945-)

Bartley, Irving D., *Assistant Professor of Music*
B.M., Syracuse University, 1933; M.M., *ibid.*, 1938. (1945-)

Barton, Philip S., *Professor of Applied Farming*
B.S., University of New Hampshire, 1928; M.Ed., *ibid.*, 1938. (1939-)

Bassett, Raymond E., *Professor of Sociology*
A.B., Yale University, 1928; M.A., University of Vermont, 1934; Ph.D., University of Washington, 1948. (1948-)

Batchelder, Bradford P., Jr., *Assistant in Research in Agricultural Engineering*
B.S., in Agr. Eng., University of New Hampshire, 1950. (1950-)

Batcheller, Joseph D., *Associate Professor of Speech*
A.B., Carnegie Institute of Technology, 1936; A.M., University of Minnesota, 1938; Ph.D., *ibid.*, 1942. (1944-)

Beal, Muriel E., *Home Demonstration Agent in Cheshire County*
B.S., Farmington Teachers College, 1939. (1951-)

Beane, Doris, *University Recorder*
A.B., Smith College, 1919; M.A., Teachers College, Columbia University, 1942. (1923-)

Becker, William J., III, *Part-time Instructor in Chemistry*
B.S., University of Vermont, 1950. (1950-)

Beckwith, Marion C., *Director and Associate Professor of Physical Education for Women*
A.B., Oberlin College, 1935; M.Ed., University of New Hampshire, 1937. (1935-)

Beecher, Myrtis E., *Home Demonstration Agent in Hillsborough County*
Graduate, Framingham Normal School, 1919; B.S., Framingham Teachers College, 1941. (1926-)

Beggs, Ann F., *Extension Assistant Professor of Home Economics*
B.S., Nasson College, 1947. (1917-)

Berzunza, Julio, *Assistant Professor of Languages*
B.A., University of Oklahoma, 1921; M.A., University of Illinois, 1923. (1928-)

Bevan, Laurence A., *Director of Agriculture and Home Economics Extension Service*
B.S., Massachusetts Agricultural College, 1913. (1946-)

Bingham, Sylvester H., *Professor of English*
A.B., Dartmouth College, 1922; A.M., Harvard University, 1929; Ph.D., Yale University, 1937. (1936-)

Bjorklund, Helen A., *Assistant State Club Leader*
B.S., State Teachers College, Framingham, Massachusetts, 1946. (1949-)

Blanchard, Fletcher A., Jr., *Instructor in Electrical Engineering*
B.S., in E.E., Union College, 1948; M.S. in E.E., Lehigh University, 1950. (1950-)

Blewett, Edward Y., *Dean of the College of Liberal Arts*
B.A., University of New Hampshire, 1926; M.A., Ohio State University, 1940. (1927-)

†**Blickle, Robert L.**, *Associate Professor of Entomology*
B.S., Ohio State University, 1937; M.S., University of New Hampshire, 1939; Ph.D., Ohio State University, 1942. (1938-41, 1946-)

Blood, Edward J., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1935. (1936-)

*†**Blood, Paul T.**, *Assistant Professor of Agronomy*
B.S., New Hampshire College, 1921; M.S., University of New Hampshire, 1924. (1921-24, 1928-)

Boston, Clarence E., *Assistant Professor of Physical Education and Athletics and Head Football Coach*
A.B., Harvard College, 1939. (1949-)

Boulay, Ernest A., *Assistant Professor of Languages*
B.A., University of New Hampshire, 1933; A.M., Boston University, 1948. (1946-)

Bourne, Elizabeth, *Club Agent in Rockingham County*
Diploma, Framingham Normal School, 1924. (1926-)

Bower, Warren C., *Psychologist in the Counseling Service*
B.A., Columbia College, 1938; M.A., Columbia University, 1939. (1948-)

Bowler, Edmond W., *Professor of Civil Engineering*
S.B. in Sanitary Engineering, Massachusetts Institute of Technology, 1914. (1920-)

Bowles. Ella S., *Publications Editor*
Plymouth Normal School, 1905. (1943-)

†**Bowring, James R.**, *Associate Professor of Agricultural Economics*
B.S.A., University of Manitoba, 1936; M.A., University of Alberta, 1941; Ph.D., Iowa State College, 1944. (1948-)

Boynton, C. Hilton, *Extension Associate Professor of Dairy Husbandry*
B.S., Iowa State College, 1934; M.S., *ibid.*, 1940. (1945-)

Brackett, Thelma, *Librarian*
A.B., University of California, 1919; Certificate, California State Library School, 1920. (1942-)

Bradley, Robert F., *County Forester in Belknap-Strafford Area*
B.S., University of New Hampshire, 1939. (1944-)

Bratton, Karl H., *Professor of Music*
B.M., University of Kansas, 1931; M.A., Teachers College, Columbia University, 1945. (1945-)

Breck, Robert W., *County Forester in Hillsborough County*
B.S., University of New Hampshire, 1940; M.F., Yale School of Forestry, 1941. (1947-)

Breon, Theodore F., *County Forester in Carroll County*
B.S., Pennsylvania State College, 1929. (1942-)

Bretsch, Howard S., *Associate Professor of Education*
A.B., Syracuse University, 1938; M.S., *ibid.*, 1939; Ph.D., *ibid.*, 1948. (1948-)

Brett, Wesley F., *Assistant Professor of The Arts*
B.Ed., Keene Teachers College, 1937; M.Ed., University of New Hampshire, 1949. (1942-)

Browne, Evelyn, *Assistant Professor of Physical Education for Women*
A.B., University of California, 1943; M.A., Teachers College, Columbia University, 1943. (1943-)

Bullock, Wilbur L., *Assistant Professor of Zoology*
B.S., Queens College, 1942; M.S., University of Illinois, 1947; Ph.D., *ibid.*, 1948. (1948-)

†Burkett, Winfred K., *Associate Professor of Agricultural Economics*
B.S., University of Illinois, 1936; M.A., Michigan State College, 1940; Ph.D., University of Wisconsin, 1948. (1948-)

Campbell, Willis C., *Research Associate, Engineering Experiment Station*
B.S., New Hampshire College, 1906. (1943-)

Carroll, Herbert A., *Professor of Psychology*
A.B., Bates College, 1923; A.M., Brown University, 1928; Ph.D., Columbia University, 1930. (1941-)

Chapman, Donald H., *Professor of Geology*
B.A., University of Michigan, 1927; M.A., *ibid.*, 1928; Ph.D., *ibid.*, 1931. (1931-)

Chase, Jere A., *Director of Admissions*
B.S., University of New Hampshire, 1936; M.Ed., *ibid.*, 1946. (1946-)

Clark, David G., *Assistant Professor of Physics*
B.A., Park College, 1938; M.S., Texas A. & M. College, 1940; Ph.D., Pennsylvania State College, 1947. (1947-)

Clark, Harriet L., *Home Demonstration Agent in Belknap County*
B.S., Framingham State Teachers College, 1942. (1946-)

Clark, Richard M., *Club Agent in Grafton County*
B.S., University of New Hampshire, 1949. (1949-)

Clark, William E., *Instructor in Mechanical Engineering, Machine Shop*
B.S., University of New Hampshire, 1931. (1946-)

Clement, William D.,*Instructor in Mechanical Engineering*
B.S., University of New Hampshire, 1942. (1946-)

Colby, Halstead N., *Extension Assistant Professor of Agricultural Engineering*
B.S., University of New Hampshire, 1930. (1946-)

Colby, Stanley W., *Agricultural Agent in Sullivan County*
B.S., University of New Hampshire, 1934. (1940-)

Colovos, Nicholas F., *Research Assistant Professor of Dairy Husbandry*
B.S., University of New Hampshire, 1927; M.S., *ibid.*, 1931. (1928-)

Comerford, Edward V., *Agricultural Agent in Cheshire County*
B.S., University of New Hampshire, 1937. (1948-)

†Conklin, James G., *Professor of Entomology*
B.S., Connecticut Agricultural College, 1926; M.S., University of New Hampshire, 1929; Ph.D., Ohio State University, 1941. (1931-)

Cooley, Roy H., *Instructor in Psychology*
B.S., University of Illinois, 1948. (1950-)

Cootey, Thomas A., *Captain, United States Air Force, Instructor in Air Science and Tactics*
B.S., Trinity University, 1950. (1951-)

†Corbett, Alan C., *Assistant Professor of Poultry Husbandry*
B.S., University of Maine, 1936; M.S., *ibid.*, 1937; D.V.M., Michigan State College, 1940. (1941-)

Cortez, Edmund A., *Associate Professor of Speech*
B.A., Taylor University, 1923; B.O., Asbury College, 1924; B.D., Asbury Theological Seminary, 1924; M.A., Columbia University, 1926; Ed.M., Harvard University, 1927. (1927-)

Coulter, Charles W., *Professor of Sociology*
B.A., University of Toronto, 1908; B.D., Victoria College, 1909; M.A., Yale University, 1910; Ph.D., *ibid.*, 1914. (1934-)

Crabtree, J. Bruce, *Assistant Professor of Mathematics*
A.B., University of Kansas, 1941; M.A., *ibid.*, 1942; Ph.D., Harvard University, 1950. (1950-)

Crandall, William D., *Part-time Assistant Physician*
B.S., University of New Hampshire, 1936; M.S., University of Rochester School of Medicine and Dentistry, 1941; M.D., *ibid.*, 1941. (1949-)

Crowell, Carolyn, *Assistant Club Agent in Hillsborough County*
B.S. in Ed., Framingham State Teachers College, 1948. (1948-)

Daggett, Albert F., *Dean of Graduate School, Coordinator of Research, and Professor of Chemistry*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1930; Ph.D., Columbia University, 1934. (1928-31, 1935-)

Daggett, G. Harris, *Associate Professor of English*
A.B., Cornell University, 1928; M.A., *ibid.*, 1929; Ph.D., University of North Carolina, 1941. (1942-)

Daly, Howard C., *Part-time Instructor in Chemistry*
B.S., University of New Hampshire, 1950. (1950-)

Danoff, Alexander P., *Assistant Professor of Languages*
A.B., New York University, 1928; A.M., *ibid.*, 1929. (1948-)

Davis, Henry A., *Research Assistant Professor of Agricultural and Biological Chemistry*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1934. (1932-)

Davis, Joseph L., *Instructor in Music*
B.S. in Music Educ., Ithaca College, 1942; M.A., Columbia University Teachers College, 1949. (1950-)

Davis, Marion S., *Home Demonstration Agent in Sullivan County*
B.E., Keene Normal School, 1929. (1937-)

Davis, Myra L., *Assistant Professor of Secretarial Studies*
B.S., Central Missouri State Teachers College, 1939; M.A., State University of Iowa, 1945. (1945-)

Dawson, Charles O., *Associate Professor of Civil Engineering*
B.C.E., Ohio State University, 1930; M.S., *ibid.*, 1940. (1930-)

Degler, Carroll M., *Associate Professor of Economics*
A.B., University of Kansas, 1925; M.B.A., New York University, 1927. (1928-)

Deming, George H., *Assistant Professor of Government and Executive Secretary of Bureau of Government Research*
A.B., Middlebury College, 1938; M.A., University of North Carolina, 1948. (1948-)

DEVINE, WALTON E., *Assistant Treasurer*
Bentley School of Accounting and Finance, 1940. (1947-)

DONOVAN, EDWARD T., *Professor of Mechanical Engineering*
B.S., University of Wisconsin, 1921. (1926-)

*†DOUGHERTY, LAWRENCE A., *Assistant Professor of Agricultural Economics*
B.S., Purdue University, 1921. (1930-)

DOWD, ROBERT J., *Instructor in Psychology*
B.S., University of New Hampshire, 1943; M.A., *ibid.*, 1948. (1948-)

DREIBELBIS, WALTER E., *Captain, United States Air Force. Instructor in Air Science and Tactics*
B.S. in Ed., State Teachers College, Kutztown, Pennsylvania, 1938. (1949-)

DREW, ESTHER S., *Instructor in The Arts*
B.S., University of New Hampshire, 1945. (1950-)

DUNCAN, LILLIAN R., *Loan Librarian*
B.A., University of Oklahoma, 1933. (1934-38, 1945-47, 1948-)

DUNLOP, WILLIAM R., *Research Assistant Professor of Poultry Husbandry*
D.V.M., V.S., Ontario Veterinary College, 1938. (1950-)

†DUNN, STUART, *Associate Professor of Botany*
B.S., University of Minnesota, 1923; M.S., Iowa State College, 1925; Ph.D., University of Minnesota, 1931. (1926-)

DUSSAULT, WILLIAM E., *County Forester in Cheshire-Sullivan Area*
B.S., University of New Hampshire, 1937. (1945-)

EDDY, EDWARD D., JR., *Assistant to the President*
B.A., Cornell University, 1944; B.D., Yale University, 1946. (1949-)

EGGERT, RUSSELL, *Research Associate Professor of Horticulture and Superintendent of Horticultural Farm*
B.S., Michigan State College, 1929; M.S., *ibid.*, 1939. (1944-46, 1948-)

ELLIS, ELIZABETH E., *Extension Assistant Professor of Home Economics*
B.S., Teachers College, Columbia University 1927; M.A., *ibid.*, 1929. (1929-)

EWALD, MARY T., *Assistant Professor of English*
A.B., College of William and Mary, 1942; A.M., Radcliffe College, 1944; Ph.D., *ibid.*, 1947. (1949-)

FAULKNER, JAMES C., *Assistant Professor of Languages*
B.L., France, 1937; C.E.S., France, 1937; D.I.O., Université de Paris, 1938; M.A., Université Laval, 1947; Ph.D., *ibid.*, 1950

FENTON, AUSTIN W., *Agricultural Agent in Carroll County*
B.A., University of New Hampshire, 1932. (1942-)

†FEUER, REESHON, *Assistant Professor of Agronomy*
B.S., University of New Hampshire, 1940. (1939, 1947-Leave of absence, February 1, 1951-)

FISCHER, ANN E., *Assistant Loan Librarian*
B.A., College of St. Mary of the Springs, 1948; M.S. in L.S., Western Reserve University, 1949. (1949-)

FISHER, LEONARD A., *Instructor in Mechanical Engineering*
B.S., (M.E.), University of New Hampshire, 1948. (1948-)

FOGG, HEMAN C., *Demonstrator, Chemistry Department*
B.S., New Hampshire College, 1918; M.S., *ibid.*, 1920; Ph.D., University of Michigan, 1933. (1918-38, 1943-)

Forsyth, James P., *Major, Infantry, Assistant Professor of Military Science and Tactics*
B.S., United States Military Academy, 1941. (1950-)

Foster, Alice P., *Instructor in Home Economics*
A.B., University of New Hampshire, 1928; M.Ed., *ibid.*, 1940. (1947-)

†Fox, Arthur G., Jr., *Instructor in Agricultural Engineering*
B.S., University of Maine, 1949. (1949-)

French, John S., *Extension Lecturer in Mathematics*
A.B., Bowdoin College, 1895; Ph.D., Clark University, 1898. (1943-44, 1945-)

Funkhouser, James A., *Professor of Chemistry*
B.S., Carnegie Institute of Technology, 1925; Ph.D., Ohio State University, 1930. (1930-). (Leave of absence, second semester, 1951-52.)

Galanes, George, *Instructor in Chemistry*
B.S. in Chem. Engr., University of New Hampshire, 1949. (1950-)

Garland, Margery W., *Home Demonstration Agent in Merrimack County*
B.S., Simmons College, 1948. (1949-)

George, Patricia F., *Instructor in Physical Education for Women*
B.A. in Dance, Bennington College, 1946; M.A., Mills College, 1950. (1950-)

Getchell, Edward L., *Professor of Mechanical Engineering*
B.S., University of Maine, 1914; E.E., *ibid.*, 1920. (1917-)

Getty, F. Vernon, *Instructor in English*
B.A., University of Maryland, 1942; M.A., *ibid.*, 1945. (1946-)

Gifford, Eleanor G., *Assistant Club Agent in Grafton County*
B.S., State Teachers College, Framingham, Massachusetts, 1927. (1950-)

Gilman, Paul A., *Assistant Professor of Applied Farming*
B.S., University of Vermont, 1938. (1945-)

Goffe, Lewis C., *Instructor in English*
B.S., University of New Hampshire, 1935; M.A., *ibid.*, 1946. (1946-)

Gordon, Carol E., *Instructor in Physical Education for Women*
B.A., Oberlin College, 1948. (1948-)

Gould, Gilbert B., *Instructor in Electrical Engineering*
B.S., Massachusetts Institute of Technology, 1943. (1946-)

Granger, Ralph H., *Assistant Professor of Applied Farming*
B.S., Massachusetts State College, 1935; M.S., *ibid.*, 1939. (1946-)

Griffin, S. Gerard, *Part-time Assistant Physician*
B.S., University of New Hampshire, 1941; M.D., Tufts Medical School, 1944. (1948-)

Grinnell, Harold C., *Dean, College of Agriculture and Director, Agricultural Experiment Station*
B.S., Cornell University, 1921; M.S., *ibid.*, 1930; Ph.D., *ibid.*, 1941. (1932-)

Guiet, Pierre, *Instructor in English*
B.A., Harvard University, 1948; M.A., Columbia University, 1949. (1949-)

Haendler, Helmut M., *Associate Professor of Chemistry*
B.S., Northeastern University, 1935; Ph.D., University of Washington, 1940. (1945-)

Haley, A. James, *Instructor in Zoology*
B.S., University of New Hampshire, 1949; M.S., *ibid.*, 1950. (1950-)

Hall, Harry H., *Associate Professor of Physics*
B.S., Union College, 1926; Ph.D., Harvard University, 1934. (1940-)

Hall, Raymond C., *Assistant Agricultural Agent in Hillsborough County*
B.S., University of New Hampshire, 1950. (1950-)

Harris, Arthur S., *Instructor in English*
S.B., Harvard College, 1942. (1947-)

Hartwell, William H., *Associate Professor of Physics*
B.S., Boston University, 1924; M.A., Wesleyan University, 1927. (1929-)

Haslerud, George M., *Associate Professor of Psychology*
B.A., University of Minnesota, 1930; Ph.D., *ibid.*, 1934. (1945-)

Hatch, John W., *Instructor in The Arts*
Diploma, Massachusetts School of Art, 1941; B.F.A., Yale University School of the Fine Arts, 1948; M.F.A., *ibid.*, 1949. (1949-)

Hauslein, John D., *Assistant Professor of Business Administration*
B.A., Yale University, 1916; M.A., *ibid.*, 1920. (1926-)

Heald, L. Franklin, *Assistant Director of Public Information*
B.A., University of New Hampshire, 1939. (1948-)

Hennessy, William G., *Professor of English*
A.B., Boston University, 1916; A.M., *ibid.*, 1924. (1923-). (Leave of absence, second semester, 1951-52.)

***Hepler, Jesse R.**, *Associate Professor of Horticulture*
B.S., Pennsylvania State College, 1911; M.S., University of Wisconsin, 1922. (1917-)

†**Higgins, Leroy J.**, *Associate Professor of Agronomy*
B.S., University of New Hampshire, 1923. (1927-28, 1929-)

Hitchcock, Leon W., *Professor of Electrical Engineering*
B.S., Worcester Polytechnic Institute, 1908. (1910-)

†**Hodgdon, Albion R.**, *Professor of Botany*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932; Ph.D., Harvard University, 1936. (1930-32, 1936-)

Hogan, John A., *Associate Professor of Economics*
A.B., University of Washington, 1932; A.M., *ibid.*, 1934; M.A., Harvard University, 1948. (1947-)

Hoitt, Samuel W., *Assistant Director of Agriculture and Home Economics Extension Service and Supervisor Bulletin Information*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1931. (1929-)

Holden, Edward W., *Agricultural Agent in Merrimack County*
B.S., University of Maine, 1923. (1923-)

Holden, John T., *Professor of Government*
A.B., Wesleyan University, 1936; M.P.A., Harvard University, 1941; M.A., *ibid.*, 1942; Ph.D., *ibid.*, 1943. (1947-)

Holle, Paul A., *Instructor in Zoology*
A.B., Valparaiso University, 1947; M.S., Notre Dame University, 1949. (1950-)

Holmes, John C., *Research Assistant in Agricultural Economics*
A.B., Dartmouth College, 1913; S.B. in Mech. Eng., Massachusetts Institute of Technology, 1915. (1939-)

Howes, Horace L., *Professor of Physics*
B.S., Syracuse University, 1905; Ph.D., Cornell University, 1915. (1918-)

Hraba, John B., *Instructor in Electrical Engineering*
B.S., University of New Hampshire, 1948; M.Eng., Yale University, 1949. (1949-)

Huddleston, Eric T., *Professor of Architecture, Supervising Architect*
B.Arch., Cornell University, 1910. (1914-)

Hugo, Francis G., *Part-time Instructor in Psychology*
B.A., Bowdoin College, 1949. (1950-)

Iddles, Harold A., *Professor of Chemistry*
B.S., Michigan State College, 1918; M.S., University of Iowa, 1921; Ph.D., Columbia University, 1925. (1929-)

Ingersoll, Frederic D., *Captain, United States Air Force, Instructor in Air Science and Tactics*
De Pauw University, San Diego State College. (1950-)

Jack, Charles C., *Part-time Instructor in Applied Farming*
A.B., Dartmouth College, 1947. (1950-)

Jackson, C. Floyd, *Professor of Zoology*
B.A., DePauw University, 1905; M.S., Ohio State University, 1907. (1908-)

Jacobs, Elizabeth M., *Home Demonstration Agent in Coos County*
B.S., University of New Hampshire, 1949. (1949-)

Jodrey, Robert M., *Instructor in Mechanical Engineering*
B.S, in M.E.. Worcester Polytechnic Institute, 1949. (1950-)

Johnson, Arthur W., *Professor of Business Administration*
B.B.A., College of Business Administration, Boston University, 1922; M.B.A., *ibid.*, 1929; C.P.A. (1920-)

Johnson, Gibson R., *Associate Professor of History*
A.B., Muskingum College, 1916; M.A., Princeton University, 1920; Ph.D., University of Edinburgh, 1922. (1932-)

Jones, Frangcon L., *Instructor in English*
B.S., University of New Hampshire, 1945; M.A., *ibid.*, 1947. (1949-)

Jones, Howard V., Jr., *Instructor in History*
A.B., Harvard College, 1946; A.M., Harvard University, 1947; Ph.D., *ibid.*, 1950. (1950-)

Judkins, Beatrice A., *State Home Demonstration Leader*
B.S., Keene Teachers College, 1937. (1945-)

Karas, John A., *Assistant Professor of Physics*
B.S., Lehigh University, 1943; M.S., *ibid.*, 1947. (1950-)

†Kardos, Louis T., *Associate Professor of Agronomy*
B.S., Rutgers University, 1932; M.S., *ibid.*, 1934; Ph.D., *ibid.*, 1937. (1943-)

Katz, Benjamin J., *Assistant Professor of Economics*
A.B., Brooklyn College, 1946; A.M., Harvard University, 1949. (1949-)

Kauppinen, Tenho S., *Assistant Professor of Mechanical Engineering*
B.S., University of New Hampshire, 1939; M.S., *ibid.*, 1947. (1939-)

†Keener, Harry A., *Professor of Dairy Husbandry*
B.S., Pennsylvania State College, 1936; M.S., West Virginia University, 1938; Ph.D., Pennsylvania State College, 1941. (1941-)

Kelly, Eugene J., *Major, United States Air Force, Assistant Professor of Air Science and Tactics*
B.S., Panzer College, 1932; M.Ed., Rutgers University, 1947. (1951-)

Kennedy, Robert C., *Assistant Professor of Applied Farming*
B.V.A., Massachusetts State College, 1940. (1941-)

Kichline, William L., *Associate Professor of Mathematics*
B.A., Lehigh University, 1924; M.S., *ibid.*, 1948. (1931-)

Kimball, Robert O., *Instructor in Mathematics*
B.S., University of New Hampshire, 1941. (1946-)

Kinsman, Donald M., *Part-time Instructor in Animal Husbandry*
B.S., University of Massachusetts, 1949. (1949-)

Knibbs, Louise S., *Urban Home Demonstration Agent in Portsmouth*
B.S., Drexel Institute of Technology, 1933. (1949-)

Knight, H. Fletcher, Jr., *Instructor in Mechanical Engineering*
B.S. in Eng., Princeton University, 1947. (1949-). (Military leave, 1951-).

Knowles, Wendell P., *Major, Field Artillery, Assistant Professor of Military Science and Tactics*
B.S., United States Military Academy, 1941. (1950-)

Knox, Robert B., *Lieutenant Colonel, United States Air Force, Professor of Air Science and Tactics*
University of New Hampshire. (1949-)

Koch, Wayne S., *Associate Professor of Education*
B.S., Muhlenberg College, 1941; Ed.M., Harvard University, 1945. (1945-)

Kohl, Dorothy M., *Counselor and Instructor in Psychology*
A.B., Bucknell University, 1947; M.A., University of New Hampshire, 1949. (1948-)

Korbel, John, *Assistant Professor of Economics*
S.B., Harvard College, 1939; M.B.A., Harvard University, 1941. (1950-)

Kriebel, Howard B., *Instructor in Forestry*
B.A., Haverford College, 1946; M.F., Yale University, 1948. (1949-)

Kuhlthau, Alden R., *Assistant Professor of Physics*
B.S., Wake Forest College, 1942; M.S., University of Virginia, 1944; Ph.D., *ibid.*, 1948. (1948-)

Kuivila, Henry G., *Assistant Professor of Chemistry*
B.Sc., Ohio State University, 1942; M.A., *ibid.*, 1944; Ph.D., Harvard University, 1948. (1948-)

Kuusisto, Alan A., *Assistant Professor of Government*
A.B., Wittenberg College, 1942; A.M., Harvard University, 1948. (1948-)

Ladd, Gardner, *Instructor in Mechanical Engineering*
B.S., Rhode Island State College, 1938; M.S., University of New Hampshire, 1939. (1946-)

†Latimer, L. Phelps, *Associate Professor of Horticulture*
B.S., University of California, 1921; M.S., *ibid.*, 1922; Ph.D., *ibid.*, 1926. (1926-)

Lavoie, Marcel E., *Laboratory Instructor in Zoology*
B.A., St. Anselm College, 1940. (1950-)

Leavitt, Harold I., *Superintendent of Properties*
B.S., New Hampshire College, 1921; M.Ed., University of New Hampshire, 1936; M.A., Columbia University, 1940. (1928-)

LEPKE, ARNO K., *Assistant Professor of German*
Ph.D., University of Marburg, Germany, 1947. (1949-)

LEWIS, NORVAL B., *Instructor in English*
A.B., Bowdoin College, 1947; M.A., University of New Hampshire, 1949. (1949-)

LITTLEFIELD, RALPH B., *Extension Assistant Professor of Agronomy and County Agent Leader*
B.S., University of New Hampshire, 1927. (1940-)

LOCKWOOD, JOHN A., *Assistant Professor of Physics*
A.B., Dartmouth College, Thayer School of Engineering, 1941; M.S., Lafayette College, 1943; Ph.D., Yale University, 1948. (1948-)

LONG, DAVID F., *Associate Professor of History*
A.B., Dartmouth College, 1939; A.M., Columbia University, 1946; Ph.D., *ibid.*, 1950. (1948-)

LUNDHOLM, CARL, *Director and Professor of Physical Education and Athletics*
B.S., New Hampshire College, 1921; M.A., Columbia University, 1939. (1928-)

LYNCH, WILLIAM W. JR., *Instructor in Education*
B.A., Williams College, 1943; M.A., Yale University, 1948; Ph.D., *ibid.*, 1950. (1950-)

MACDONALD, JOHN A., *Director of the University Health Service*
B.Sc., St. Francis Xavier University, 1933; M.D., C.M., Dalhousie University, 1945. (1950-)

MACPHERSON, KEITH B., *Instructor in Civil Engineering*
B.S. in C.E., University of New Hampshire, 1950. (1950-)

MAGRATH, RAYMOND C., *Treasurer*
Burdett College, 1916. (1920-)

MAJCHRZAK, ELAINE R., *Instructor in Music*
B.M., Eastman School of Music, University of Rochester, 1945; M.M., *ibid.*, 1948. (1946-)

MANN, GUY W., *Club Agent in Strafford County*
B.S., University of New Hampshire, 1933. (1946-)

MANTON, ROBERT W., *Professor of Music*
Harvard University, 1918. (1923-)

MARSHALL, THOMAS O., JR., *Professor of Education*
A.B., Colgate University, 1929; Ed.M., University of Buffalo, 1933; Ed.D., Harvard University, 1941. (1947-)

MARSHALL, WILLIAM C., *Instructor in Music*
B.S., Northwestern University, 1948. (1948-)

MARSTON, PHILIP M., *Professor of History*
B.A., University of New Hampshire, 1924; M.A., *ibid.*, 1927. (1924-)

MARTIN, HORACE S., JR., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1941. (1948-)

MATTHEWS, CHARLES M., *Assistant Professor of Forestry*
B.S., North Carolina State College, 1937. (1946-)

MAYNARD, MAX S., *Assistant Professor of English*
B.A., University of British Columbia, 1937. (1946-)

MCCARTHY, DORIS C., *Part-time Instructor in Home Economics*
B.A., University of New Hampshire, 1949. (1950-)

McCurry, Maude, *Reference Librarian*
A.B., University of Georgia, 1942; A.B. in L.S., Emory University, 1947. (1947-)

McDowell, Horace G., *Instructor in Geography*
A.B., Miami University, 1949; M.A., University of Nebraska, 1950. (1950-)

McIntire, Paul H., *Acting Director of Counseling and Instructor in Psychology*
B.A., University of New Hampshire, 1942; A.M., Boston University, 1945. (1946-)

McLaughlin, Helen F.,*Professor of Home Economics*
B.A., University of Wisconsin, 1909; B.S., Simmons College, 1915; M.A., Teachers College, Columbia University, 1925. (1917-)

McReel, Nancy D., *Assistant Cataloguer*
A.B., Vassar College, 1944; A.B.L.S., University of Michigan, 1947. (1949-)

Meader, Elwyn M., *Research Associate Professor of Horticulture*
B.S., University of New Hampshire, 1937; M.S., Rutgers University, 1941. (1948-)

Medesy, William A., *Dean of Men*
B.S., Purdue University, 1931; M.F., Yale University, 1933; M.A. Columbia University, 1950. (1940-)

Menge, Carleton P., *Assistant Professor of Education*
B.S., Springfield College, 1939; M.A., University of Chicago, 1940; Ph.D., *ibid.*, 1948. (1948-)

Merlini, Albert J., *Instructor in Electrical Engineering*
B.S., Worcester Polytechnic Institute, 1948. (1948-)

Merritt, Richard D., *University Photographer and Instructor in The Arts*
Rochester Institute of Technology. (1948-)

Meyers, Theodore R., *Professor of Geology*
B.A., Ohio State University, 1926; M.A., *ibid.*, 1929. (1927-)

Millard, Ben, *Assistant Professor of Chemistry*
B.Sc., University of Bristol, England, 1942; Ph.D., *ibid.*, 1948. (1950-)

Mills, Marian E., *Assistant Professor of Botany*
B.S., Teachers College, Columbia University, 1917; M.A., *ibid.*, 1920. (1927-)

Milne, Lorus J., *Associate Professor of Zoology*
B.A., University of Toronto, 1933; M.A., Harvard University, 1934; Ph.D., *ibid.*, 1936. (1948-)

Milne, Margery J., *Honorary Fellow, Zoology*
A.B., Hunter College, 1933; M.A., Columbia University, 1934; M.A., Radcliffe College, 1936; Ph.D., *ibid.*, 1939. (1948-)

Mooradian, Andrew T., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1948. (1950-)

Moore, George M., *Professor of Zoology*
A.Sc., University of the City of Toledo, 1926; B.S., Otterbein College, 1928; M.S., University of Michigan, 1932; Ph.D., *ibid.*, 1938. (1944-) (Leave of absence, second semester, 1951-52.)

†Moore, Herbert C., *Associate Professor of Dairy Husbandry*
B.S., Purdue University, 1923; M.S., University of Minnesota, 1925. (1928-)

Morrell, Clark H., *Extension Lecturer in Industrial Management*
B.S.E. in Voc. Ed., Fitchburg Teachers College, 1946. (1950-)

†Morrow, Kenneth S., *Professor of Dairy Husbandry*
B.S., University of Minnesota, 1918; M.S., *ibid.*, 1925. (1934-)

Morse, Wallace J., *Research Assistant in Entomology*
B.S., University of New Hampshire, 1943. (1943-)

Moss, Herbert J., *Secretary of the University and Associate Professor of Sociology*
A.B., Wesleyan University, 1931; A.M., Harvard University, 1932; Ph.D., *ibid.*, 1938. (1946-)

†Murphy, Douglas R., *Instructor in Botany*
B.S., University of New Hampshire, 1949. (1950-)

Murphy, Marjorie G., *Instructor in English*
A.B., Colby College, 1937; A.M. in T., Radcliffe College, 1942. (1949-)

Nason, Harriet B., *Supervising Nurse*
R.N., Wentworth Hospital, Dover, N. H., 1935. (1942-)

†Nast, Charlotte G., *Assistant Professor of Botany*
B.A., University of Wisconsin, 1927; M.A., *ibid.*, 1929; Ph.D., University of California, 1948. (1948-)

Newman, Barbara K., *Instructor in Physical Education for Women*
B.S., Russell Sage College, 1939; M.Ed., St. Lawrence University, 1948. (1948-)

Nielson, A. Melville, *Assistant Professor of Sociology*
B.S. in Educ., Bowling Green State University, 1942; M.A., Ohio State University, 1947. (1950-)

Nowicki, Stellar F., *Home Demonstration Agent in Carroll County*
B.Ed., Keene Teachers College, 1945. (1950-)

Nulsen, William B., *Professor of Electrical Engineering*
B.S., California Institute of Technology, 1918; M.S., University of New Hampshire, 1930. (1926-)

O'Brien, Daniel A., *Agricultural Agent in Coos County*
Cornell University, 1913. (1920-)

O'Connell, Elias M., *Instructor in Mechanical Engineering, Forge and Welding Shop*
Graduate, Wentworth Institute, course in forging, hardening and tempering, 1923; Graduate, two-year course in pattern making, *ibid.*, 1925. (1926-)

*Olney, Austin L., *Assistant Professor of Education*
B.S., Central Michigan College of Education, 1937; M.Ed., University of Vermont, 1946. (1946-)

O'Loane, J. Kenneth, *Assistant Professor of Chemistry*
B.Sc., St. Benedict's College, 1935; M.Sc., University of Washington, 1943; A.M., Harvard University, 1947, Ph.D., *ibid.*, 1950. (1948-).

Olsson, Gunnar B., *Extension Assistant Dairyman*
B.S., New Hampshire College, 1922. (1944-)

Owen, Allen, *Instructor in Music*
B.M., Cincinnati Conservatory of Music, 1950; M.M., *ibid.*, 1950. (1950-)

Owen, Margaret, *Order Librarian*
A.B., Mount Holyoke College, 1919. (1943-)

Parker, Clifford S., *Professor of Languages*
A.B., Harvard University, 1912; A.M., *ibid.*, 1914; Ph.D., Columbia University, 1925. (1931-). (Leave of absence, second semester, 1951-52-).

Partlow, Robert B., Jr., *Instructor in English*
A.B., Harvard College, 1941; M.A. in T., Harvard School of Education, 1947; A.M., Harvard Graduate School, 1948. (1949-)

Partridge, Allan B., *Associate Professor of History*
A.B., Clark University, 1922; A.M., *ibid.*, 1923. (1925-)

Patton, Willard G., *Club Agent in Cheshire County*
B.S., Massachusetts State College, 1939. (1945-)

Pease, Robert L., *Assistant Professor of Mathematics*
A.B., Miami University, 1943; Ph.D., Massachusetts Institute of Technology, 1950. (1950-)

Percival, Gordon P., *Research Associate Professor of Agricultural and Biological Chemistry.*
B.S., Massachusetts Agricultural College, 1924; M.S., *ibid.*, 1926. (1926-)

Perkins, Donald M., *Assistant Professor of Mathematics*
B.S., University of New Hampshire, 1931; M.S., *ibid.*, 1933. (1931-)

Perkins, Vincent A., *Club Agent in Sullivan County*
B.S., New Hampshire College, 1916. (1946-)

Perrin, Joseph S., *Instructor in The Arts*
B.F.A., University of Georgia, 1950. (1950-)

Perry, Errol C., *Instructor in Agriculture*
B.S., Massachusetts State College, 1920. (1929-42, 1946-)

Peterson, Sven R., *Instructor in Mathematics*
B.S., Harvard College, 1943; M.A., Columbia, 1947. (1949-)

Petroski, Joseph J., *Assistant Professor of Physical Education and Athletics*
B.A., University of New Hampshire, 1947. (1947-)

†Phillips, Thomas G., *Professor of Agricultural and Biological Chemistry*
B.S., Ohio State University, 1912; M.S., *ibid.*, 1913; Ph.D., University of Chicago, 1918. (1925-)

Phillips, Wilmer S., *Colonel, Coast Artillery Corps, Professor of Military Science and Tactics*
B.A., St. John's College, 1914. (1948-)

Phipps, Robert H. K., *County Forester in Coos County*
B.S., University of New Hampshire, 1931. (1942-)

Pierce, Everett W., *Agricultural Agent in Hillsborough County*
B.S., Cornell University, 1923. (1923-)

Plaisted, Frank H., *Extension Lecturer in Industrial Management, and Assistant Director, University Extension Service*
B.S. in Eng., Worcester Polytechnic Institute, 1912. (1950-)

Platts, Frances E., *Assistant Professor of Home Economics*
B.S., University of New Hampshire, 1933; M.Ed., *ibid.*, 1941. (1945-)

Pray, Eden T., *Research Assistant, Engineering Experiment Station*
B.S., University of New Hampshire, 1950. (1950-)

Presby, Harold F., *Instructor in Agriculture*
B.S., University of New Hampshire, 1931. (1947-)

Preston, Tim C., *Extension Lecturer in Mathematics*
B.S., University of New Hampshire, 1948; M.S., University of Michigan, 1950. (1950-)

†Prince, Ford S., *Professor of Agronomy*
B.S., University of Illinois, 1913. (1925-)

Prince, William L., *University Alumni Secretary*
B.A., University of New Hampshire, 1930. (1946-)

Purington, James A., *Agricultural Agent in Rockingham County*
B.S., New Hampshire College, 1916; M.S., Massachusetts Agricultural College, 1920. (1920-)

†**Purinton, Helen J.**, *Associate Professor of Agricultural and Biological Chemistry*
B.S., University of Miami, 1937; M.S., Pennsylvania State College, 1940; Ph.D., Purdue University, 1943. (1943-)

Rand, M. Elizabeth, *Assistant Professor of Home Economics*
A.B., Wheaton College, 1930; M.Ed., Boston University, 1946. (1948-)

Rasmussen, Edwin J., *Extension Professor of Horticulture*
B.S., University of Wisconsin, 1927; M.S., *ibid.*, 1929. (1929-36, 1947-)

Raynes, Paul M., *Instructor in Agriculture*
B.S., University of New Hampshire, 1940. (1949-)

Reynolds, George E., *Assistant Professor of Music*
M.B., Southwestern College, 1942; M.M., Cincinnati Conservatory of Music, 1946. (1946-)

Rheaume, Leo A., *Part-time Instructor in Chemistry*
B.S., University of New Hampshire, 1950. (1950-)

Rice, Una A., *Home Demonstration Agent in Grafton County*
B.S., Teachers College, Columbia University, 1927; A.M., *ibid.*, 1942. (1929-)

Rich, Wayne S., *Club Agent in Merrimack County*
B.S., University of Maine, 1934. (1946-)

Richards, Donald H., *Director of Placement*
B.A., University of New Hampshire, 1943. (1947-)

†**Richards, Mathias C.**, *Professor of Botany*
B.S., Utah State Agricultural College, 1932; Ph.D., Cornell University, 1938. (1941-)

Richardson, Edythe T., *Associate Professor of Zoology*
B.S., New Hampshire College, 1922; M.S., University of New Hampshire, 1924. (1922-)

Richardson, John C., *Instructor in English*
A.B., Dartmouth College, 1941; M.A., Columbia University, 1942. (1946-)

†**Rines, Bernard P.**, *Assistant Professor of Agricultural Engineering*
B.S., in Agr. Eng., University of Maine, 1946; B.S. in Elec. Eng., *ibid.*, 1948. (1949-)

†**Ringrose, Richard C.**, *Associate Professor of Poultry Husbandry*
B.S., Cornell University, 1932; Ph.D., *ibid.*, 1936. (1942-)

†**Risley, Edward B.**, *Instructor in Horticulture and Greenhouse Superintendent*
B.S., Massachusetts State College, 1946. (1948-)

Robinson, Francis E., *Director of Public Information*
B.A., University of New Hampshire, 1931; M.A., *ibid.*, 1933. (1944-)

Robinson, Frederick J., *Instructor in Mathematics*
B.S., University of New Hampshire, 1949. (1949-)

Romani, John H., *Instructor in Government*
B.A., University of New Hampshire, 1948; M.A., *ibid.*, 1949. (1950-)

Roper, Elizabeth R., *Club Agent in Carroll County*
B.A., University of New Hampshire, 1928. (1928-)

ROYCE, PHILIP M., *Lieutenant Colonel, Infantry, Associate Professor of Military Science and Tactics*
B.S., U. S. Military Academy, 1939. (1948-)

RUTHERFORD, RICHARD, *Agricultural Agent in Grafton County*
B.S., University of New Hampshire, 1940. (1941, 1948-)

SACKETT, EVERETT B., *Dean of Student Administration and Professor of Education*
B.A., Hamline University, 1923; M.A., University of Minnesota, 1925; Ph.D., Columbia University, 1931. (1938-)

ST. JOHN, PHILIP A., *Laboratory Instructor in Zoology*
B.S., University of New Hampshire, 1949. (1950-)

SAWYER, ALBERT K., *Instructor in Chemistry*
A.B., Colby College, 1940; M.S., University of Maine, 1947. (1949-)

SCHAEFER, PAUL E., *Assistant Dean, College of Liberal Arts*
A.B., Bethany College, 1926; M.S., Ohio State University, 1931; Ph.D., *ibid.*, 1936. (1941-)

SCHEIER, EDWIN, *Assistant Professor of The Arts*
Art-Student League, 1928-30; New York School of Industrial Art, 1929-31. (1940-)

SCHENCK, CORNELIUS W., *Instructor in Mathematics*
B.S. in M.E., Stevens Institute of Technology, 1946; M.S., *ibid.*, 1949. (1949-)

SCHULTZ, J. HOWARD, *Associate Professor of English*
B.A., University of Texas, 1933; M.A., *ibid.*, 1934; M.A., Harvard University, 1939; Ph.D., *ibid.*, 1940. (1946-)

SCOTT, FREDERIC A., *Professor of Physics*
B.S., New York State College for Teachers, 1924; M.S., Lehigh University, 1929; Ph.D., Rice Institute, 1935. (1947-)

SEELEY, LAUREN E., *Dean of the College of Technology, Director of the Engineering Experiment Station, Professor of Mechanical Engineering*
Ph.B., Yale University, 1921; M.E., *ibid.*, 1924; L.L.B., *ibid.*, 1935. (1945-)

SEIBERLICH, JOSEPH, *Research Associate Professor, Engineering Experiment Station*
Diplom Ingenieur, Technical University, Karlsruhe, Germany, 1924; Doctor Ingenieur, *ibid.*, 1928. (1941-)

SEWELL, CHARLES A., *Instructor in Mathematics*
B.S., University of New Hampshire, 1929; M.S., *ibid.*, 1932. (1946-)

SHAFER, JOSEPH E., *Professor of Economics*
B.S., DePauw University, 1925; M.A., University of Wisconsin, 1929; Ph.D., *ibid.*, 1932. (1946-)

†SHIMER, STANLEY R., *Associate Professor of Agricultural and Biological Chemistry*
B.S., Muhlenberg College, 1918; M.S., Pennsylvania State College, 1923. (1924-)

SHORB, ELLIS, *Instructor in English*
B.S., Columbia University, 1947. (1947-)

SINCLAIR, ROBERT Y., *County Forester in Grafton County*
B.S., University of New Hampshire, 1939; M.F., Yale University, 1941. (1949-)

Skelton, Russell R., *Professor of Civil Engineering*
B.S. in Civil Engineering, Purdue University, 1923; C.E., *ibid.*, 1934; S.M. in Engineering, Harvard University, 1939. (1928-)

†Skoglund, Winthrop C., *Professor of Poultry Husbandry*
B.S., University of New Hampshire, 1938; M.S., Pennsylvania State College, 1940. (1950-)

†Slanetz, Lawrence W., *Professor of Bacteriology*
B.S., Connecticut State College, 1929; Ph.D., Yale University, 1932. (1932-)

Sloan, Roger P., *County Forester in Rockingham County*
B.S., University of New Hampshire, 1942. (1946-)

Small, Richard L., *Part-time Lecturer in Business Administration with rank of Assistant Professor*
A.B., Harvard University, 1916. (1947-)

Smith, Gerald L., *Instructor in Applied Farming*
B.S., University of New Hampshire, 1948. (1948-)

*†Smith, William W., *Associate Professor of Horticulture*
B.S., University of New Hampshire, 1924; M.S., *ibid.*, 1929; Ph.D., Michigan State College, 1935. (1936-)

Solt, Marvin R., *Associate Professor of Mathematics*
B.S., Lehigh University, 1918; M.S., *ibid.*, 1925. (1926-)

Somers, Richard H., *Special Lecturer in Mathematics with rank of Assistant Professor*
B.S., U. S. Military Academy, 1907; M.B.A., Harvard Graduate School of Business Administration, 1928. (1946-)

Starke, Raymond R., *Professor of Hotel Administration*
A.B., Boston University, 1921; A.M., Harvard University, 1926. (1921-24, 1926-)

Stearns, William M., *Assistant Director of Public Information*
Duke University, University of New Hampshire. (1948-)

Steele, Donald E., *Assistant Professor of Music*
B.M., New England Conservatory of Music, 1946. (1946-)

†Stevens, Clark L., *Professor of Forestry*
B.S., New Hampshire College, 1917; M.F., Yale University, 1926; Ph.D., *ibid.*, 1930. (1919-)

Stevens, Henry B., *Director of University Extension Service*
A.B., Dartmouth College, 1912. (1918-)

Stewart, Glenn W., *Assistant Professor of Geology*
B.S., University of New Hampshire, 1935; M.S., Syracuse University, 1937. (1938-39, 1941-)

Stimson, Ruth G., *Home Demonstration Agent in Rockingham County*
B.S., University of New Hampshire, 1940; M.Ed., *ibid.*, 1944. (1942-)

Stolworthy, E. Howard, *Associate Professor of Mechanical Engineering*
B.S., Tufts College, 1922. (1922-)

Stowe, A. Monroe, *Research Professor of Education*
Ph.B., Northwestern University, 1903; A.M., *ibid.*, 1904; A.M., Harvard University, 1905; Ph.D., Columbia University, 1909. (1934-)

Stowe, Myra K., *Instructor in Physical Education for Women*
B.S., Woman's College of the University of North Carolina, 1944. (1949-)

†Swain, Lewis C., *Associate Professor of Forestry*
B.S., New Hampshire College, 1918; M.F., Harvard University, 1929. (1927-)

Swasey, Henry C., *Associate Professor of Physical Education and Athletics*
B.S., New Hampshire College, 1915; M.S., Indiana University, 1941. (1921-)

Sweet, Paul C., *Associate Professor of Physical Education and Athletics*
B.S., University of Illinois, 1923; M.A., University of Southern California, 1941. (1924-)

†Teeri, Arthur E., *Associate Professor of Agricultural and Biological Chemistry*
B.S., University of New Hampshire, 1937; M.S., *ibid.*, 1940; Ph.D., Rutgers University, 1943. (1938-40, 1943-)

Tesmer, Irving H., *Instructor in Geology*
B.A., University of Buffalo, 1946; M.A., *ibid.*, 1948. (1950-)

Thames, Sarah, *Assistant Professor of Home Economics and Manager and Dietitian, University Dining Hall*
B.S., Simmons College, 1930; M.A., Teachers College, Columbia University, 1942. (1945-)

Thomas, George R., *Professor of The Arts and Director of Summer Session*
B.Arch., Carnegie Institute of Technology, 1930. (1930-)

Thompson, Wilbur E., *County Forester in Merrimack County*
B.S., University of New Hampshire, 1927. (1945-)

Tinsley, Eleanor B., *Instructor in The Arts*
B.S., Iowa State College, 1945; M.S., Purdue University, 1947. (1948-)

Tirrell, Loring V., *Professor of Animal Husbandry*
B.S., Massachusetts Agricultural College, 1920; M.S., Massachusetts State College, 1941. (1921-25, 1930-)

Towle, Carroll S., *Professor of English*
A.B., Bowdoin College, 1922; Ph.D., Yale University, 1933. (1931-)

Tyrrell, Doris E., *Associate Professor of Secretarial Studies*
B.S., University of Minnesota, 1926; M.A., *ibid.*, 1932. (1938-)

Underwood, Russell E., *Extension Assistant Economist in Marketing*
B.S., Pennsylvania State College, 1918. (1948-)

Veyette, John J., Jr., *Major, United States Air Force, Assistant Professor of Air Science and Tactics*
B.S., Norwich University, 1939. (1946-)

Vigneault, Raymond P., *Part-time Instructor in Chemistry*
B.A., Amherst College, 1950. (1950-)

Wadleigh, Clarence *B.*, *State Club Leader, Extension Service*
B.S., New Hampshire College, 1918. (1918-19, 1920-)

Walsh, John S., *Associate Professor of Languages*
A.B., Harvard University,1915 ; M.A., Boston University, 1928. (1922-)

Warren, Richard, *Extension Associate Professor of Poultry Husbandry*
B.S., Cornell University, 1934; M.S., *ibid.*, 1935. (1937-)

Webber, Laurance E., *Research Associate Professor and Assistant to Director, Engineering Experiment Station*
B.S., University of New Hampshire, 1934; M.E., *ibid.*, 1940; M.S. in M.E., *ibid.*, 1946. (1937-)

Webster, Robert G., *Associate Professor of English*
B.A., University of New Hampshire, 1926; M.A., *ibid.*, 1930. (1927-)

Weeks, Shirley J., *Home Demonstration Agent in Strafford County*
B.S., State Teachers College, Framingham, Massachusetts, 1939; M.S., Cornell University, 1944. (1945-)

Weiman, Carlos F., *Lecturer in Economics and Business Administration*
"Contador", University of Porto Alegre, 1919., LL.B., Suffolk Law School, 1929; A.M., Harvard University, 1931. (1948-)

Welch, Albert G., *Research Assistant Professor and Project Coordinator, Engineering Experiment Station*
B.S., University of New Hampshire, 1936; M.S., *ibid.*, 1941. (1937-)

Weston, Ruth C., *Club Agent in Belknap County*
B.A., New Hampshire College, 1921. (1929-)

Wheaton, Philip D., *Instructor in Speech*
A.B., Clark University, 1938; Ed.M., *ibid.*, 1945. (1947-)

Wheeler, Charles M., Jr., *Assistant Professor of Chemistry*
B.S., West Virginia University, 1947; M.S., *ibid.*, 1949. (1950-)

Whippen, Norman F., *Extension Assistant Marketing Specialist and County Agent-at-Large*
B.S., New Hampshire College, 1918. (1922-23; 1928-45; 1948-)

Wiesen, George W., Jr., *Club Agent in Coos County*
B.S., State Teachers College, Indiana, Penn., 1941; M.S., Teachers College, Columbia University, 1946. (1947-)

Winn, Alden L., *Assistant Professor of Electrical Engineering*
B.S. in E.E., University of New Hampshire, 1937; S.M. in E.E., Massachusetts Institute of Technology, 1948. (1948-)

Wolfe, Leonard P., *Research Assistant in Botany*
B.S., University of New Hampshire, 1948; M.S., 1950. (1950-)

Woodruff, Ruth J., *Dean of Women and Associate Professor of Economics*
A.B., Bryn Mawr, 1919; A.M., *ibid.*, 1920; Ph.D., Radcliffe, 1931. (1931-)

Woods, Frank R., Jr., *Instructor in Physics*
A.B., New York University, 1941; M.S., *ibid.*, 1946. (1948-)

†**Woodworth, Harry C.**, *Professor of Agricultural Economics*
B.S., University of Illinois, 1909; M.S., Cornell University, 1916. (1921-)

Wooster, Caroline S., *Assistant Professor of Physical Education for Women*
Sargent School for Physical Education, 1926; B.S., University of New Hampshire, 1943. (1946-)

Worthen, Roy E., *Assistant Club Agent in Rockingham County*
B.S., University of New Hampshire, 1943. (1946-)

Wright, Frank, *Acting Extension Assistant Dairyman*
B.S., University of New Hampshire, 1949. (1950-)

Yale, William, *Associate Professor of History*
Ph.B., Sheffield Scientific School, Yale University, 1910; M.A., University of New Hampshire, 1928. (1928-)

†**Yeager, Albert F.**, *Professor of Horticulture*
B.S., Kansas State College, 1912; M.S., Oregon Agricultural College, 1916; Ph.D., Iowa State College, 1936. (1939-)

Yeomans, Edith W., *Instructor in Home Economics*
B.S., Home Ec. Educ., Cedar Crest College, 1943; M.S., Home Ec., Cornell University, 1950. (1950-)

Zimmerman, Oswald T., *Professor of Chemical Engineering*
B.S.E. (Ch.E.), University of Michigan, 1929; M.S.E., *ibid.*, 1931; Ph.D., *ibid.*, 1934. (1938-)

ADMINISTRATIVE ASSISTANTS

GUY W. ANGELL, *Farm Superintendent*
KATHLEEN R. BECKINGHAM, B.A., M.Ed., *Psychometrist, Counseling Service*
SHIRLEY M. CURRIER, B.S., *Assistant Manager, University Dining Hall*
W. MARTIN DELBROUCK, *Manager, Printing Service*
DAYTON M. HENSON, B.S., *Manager, University Bookstore*
PHYLLIS MCDONALD, B.A., *Director, Durham Notch Hall*
SHELDON PRESCOTT, B.A., *Manager, College Road Apartments*
BEATRICE M. RICHMOND, *Cashier, Business Office*
RUSSELL C. SMITH, B.A., *Purchasing Assistant*
ALICE W. STONE, *Assistant Manager, University Dining Hall*

MURIEL M. ARNOTT, *Secretary to the Treasurer*
THERESA R. BATCHELDER, *Mail Clerk*
GLADYS H. BLAISDELL, *Assistant to the Treasurer*
NANCY BOWEN, *Secretary to the President*
MAISIE C. BURPEE, *Secretary to the Dean, College of Agriculture, and to the Director, Agricultural Experiment Station*
LILLIAN F. CURTIS, *Personnel Assistant, President's Office and Secretary of the Summer Session*
MILDRED M. FLANDERS, *Secretary to the Dean of the College of Technology*
CORA FRENCH, *Secretary to the Director of the Agriculture and Home Economics Extension Service*
DOROTHY S. HANSON, *Secretary to the Dean, College of Liberal Arts*
GEORGIA A. KOUGIAS, *Senior Stenographer-Clerk, Office of the Secretary*
ELOISE A. MACRAE, *Secretary to the Dean of Men and the Dean of Women*
GLADYS E. PEASE, *Secretary, Office of the Dean of Student Administration*

HOUSE DIRECTORS

LULIA T. ANDREWS, Scott Hall
JEAN BAILEY, East and West Halls
FLORENCE BEAN, Grant House
JEANNE BERRY, B.S., Assistant to House Director, Congreve Hall
FANNY T. COBB, Commons
ARLINE B. DAME, Hetzel Hall
ESTHER M. DUNNING, Congreve Hall
AMERICA F. DURRANCE, L.I., Hunter Hall
EDITH R. EDWARDS, Engelhardt Hall
MINNA B. HYDE, B.A., Fairchild Hall
BESS H. MAULDIN, Schofield House
EDNA A. MCLELLAN, Congreve North
MARCIA N. SANDERS, House Director Emeritus
GRACE C. SEVERANCE, Smith Hall
MARGARET D. WALLACE, A.B., Gibbs Hall

UNIVERSITY FEES AND EXPENSES

The following paragraphs summarize some of the pertinent information about fees and expenses. Complete information may be found in *Announcements, 1950-51.*

TUITION. Tuition for each semester is payable in advance.

The charge for tuition and fees is $250 per year for residents of New Hampshire and $500 for non-residents. Tuition and fees are itemized as follows: Tuition — $125 for residents of New Hampshire and $375 for non-residents. Fees — registration, $10; laboratory and library, $60; health and infirmary, $15; recreational facilities, $25; general University fee (incidentals), $15. Refundable deposits may be required to cover loss or breakage in certain departments. A charge will be made for individual lessons in music, as noted in the description of Applied Music courses.

Any student who registers for 8 credits or more per semester shall pay the full tuition. Any student registering for fewer than 8 credits shall pay $9.00 per credit hour if a resident of the State, and $18.00 per credit hour if a non-resident.

CHANGES IN RATES. The University reserves the right to adjust charges for such items as tuition, board, and room rent from time to time. Such changes will be held to a minimum and will be announced as far in advance as feasible.

DEPOSITS. A deposit of $15 is required of each student to whom military equipment is issued. Every student participating in the program of Physical Education and Athletics for Men and Physical Education for Women is required to deposit $1 for a locker.

STUDENT ACTIVITY TAX. This tax, which was $7.50 in 1950-1951, must be paid by each undergraduate at the time of registration.

ROOMS. *Students living in University dormitories are required to sign room contracts covering the college year.*

A five-dollar ($5.00) room deposit must accompany each application for a room. This deposit will be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage.

Room rent is payable in advance. For the Fall Semester room rent must be paid not later than August 15, and for other semesters during the registration periods. Reserved rooms will be held only until August 15 unless the Fall Semester's rent is paid before that date.

Rooms which are paid for and are not occupied one day after registration may be declared vacant and the room rent returned, unless the individual who holds the reservation makes a written request to the Dean of Men or the Dean of Women to hold the room until a later date. The advance payment for the room will not be returned to those who make this special requests. No room will be reserved for more than 10 days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or with families may be secured for about the same prices as for those in University dormitories.

Woman students under 23 years of age are required to room in one of the women's dormitories or a sorority house, unless they are working for a room in a private home or are living with their family.

FOUR-YEAR CURRICULUMS

COLLEGE OF AGRICULTURE

Harold C. Grinnell, *Dean*

Departments

Agricultural and Biological Chemistry
Agricultural Economics
Agricultural Engineering
Agronomy
Animal Husbandry
Botany
Dairy Husbandry
Entomology
Forestry
Home Economics
Horticulture
Poultry Husbandry

GENERAL INFORMATION

The objective of the Four-Year Curriculum of this College is to give a broad general education and thorough training in the basic sciences as well as to develop specific technical knowledge relating to the various phases of agriculture, forestry, and home economics. To this end several subjects in the Colleges of Liberal Arts and Technology have been added to those provided by the College of Agriculture. The lecture and recitation work of the classroom is supplemented by practical exercises in the laboratories and about the farm. Seminars and discussion courses are provided for advanced students.

Some of the graduates of the Four-Year Curriculum return to the farm for the purpose of putting into practice the knowledge and training gained in their college courses, and have become successful and prosperous citizens of their communities; others accept salaried positions as superintendents or foremen on large dairy, fruit, stock, or poultry farms; still others take positions as teachers of science and agriculture in our secondary schools, or as assistants in agricultural colleges, experiment stations, or extension services; and, finally, an increasingly large number continue in specialized work, here or elsewhere, as candidates for graduate degrees.

Four programs of study are offered by the Department of Home Economics, *i.e.*, General Home Economics, Hospital Dietetics, Institutional Administration, and Teacher Preparation for Teaching in Secondary Schools and for Extension work.

The Department of Agricultural Engineering offers a program of study called Mechanized Agriculture, the requirements of which are consistent with other curriculums leading to the degree of Bachelor of Science. Furthermore, the Department administers the more technical curriculum, Agricultural Engineering, the requirements of which parallel those of similar programs offered by the College of Technology. The degree of Bachelor of Science in Agricultural Engineering is awarded for satisfactory completion of the Agricultural Engineering Curriculum.

BACHELOR OF SCIENCE DEGREE

When a student enters the College of Agriculture as a candidate for the Bachelor of Science degree he is placed under the guidance of the Executive Advisory Committee. Previous to registration for the second semester the student will be given an opportunity to select his major field of study.

When his major field has been selected, not later than at registration for the Sophomore Year, he will be assigned to an adviser (or study committee), who will be responsible for approving his program of study until such time as he selects a new major, or until the Executive Advisory Committee changes the adviser.

The major curriculums from which the Agricultural student may make his final choice follow. (Supplementing these, the College of Agriculture will be pleased to arrange courses of study for pre-theological, two-year pre-veterinary, and other students who desire a specialized program of study).

GENERAL AGRICULTURE
GENERAL HOME ECONOMICS
AGRICULTURAL AND BIOLOGICAL CHEMISTRY
AGRICULTURAL ECONOMICS
AGRONOMY
ANIMAL HUSBANDRY
BOTANY
DAIRY HUSBANDRY
ENTOMOLOGY
FORESTRY
HORTICULTURE
HOSPITAL DIETETICS
INSTITUTIONAL ADMINISTRATION
MECHANIZED AGRICULTURE
POULTRY HUSBANDRY
PRE-VETERINARY
TEACHER PREPARATION IN AGRICULTURE
TEACHER PREPARATION IN HOME ECONOMICS

REQUIREMENTS FOR DEGREES*

GENERAL REQUIREMENTS

In order to qualify for a degree each candidate must complete 136 semester credits, including the courses prescribed by his adviser or advisory committee, in one of the major Four-Year Curriculums. He must achieve a grade point average of at least 1.8.

A student graduating from any of the Four-Year Curriculums may be required by his major department to have sufficient practical experience to enable the department to recommend the student for a position.

No student may graduate from the College of Agriculture without a specific recommendation from his major department.

During the second semester of the Junior Year, each candidate for the Bachelor of Science Degree shall be given, under the direction of his major department, a departmental interview designed to test the student's general competence in the field of his major and to serve as a guide for his future training.

SPECIFIC REQUIREMENTS

During the Freshman Year nearly all agricultural students who are candidates for the Bachelor of Science degree pursue the same general outline of fundamental course work as listed below:

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*Effective July 1, 1948, the Department of Home Economics was reconstituted and assigned to the College of Agriculture from the College of Liberal Arts. All Home Economics students who matriculated before July, 1948, may be graduated by meeting the requirements of the catalogue in effect at the time of their matriculation. Those entering in July, 1948, or thereafter must complete 136 credits for graduation and meet other requirements of the College of Agriculture approved by the college faculty except as otherwise provided.

FRESHMAN YEAR

All Curriculums

	First Semester Credits	*Second Semester Credits*
Military and Air Science 1-2	1½	1½
Physical Education 31, 32	½	½
Botany 1	4	
Chemistry 1, 2 or 3, 4 (General)	4	4
Elective		3
English 1, 2	3	3
Mathematics (2), (13)	3	3
Orientation 1	1	
Zoology 48		3
	17	18

For Home Economics students see suggested programs. Students who plan to major in Botany should take Botany 2 and may defer Zoology 48 until the Sophomore Year. Pre-Veterinary students may substitute Biology 1-2 for Botany 1 and Zoology 48.

SOPHOMORE YEAR

All Curriculums

	First Semester Credits	*Second Semester Credits*
Military and Air Science 3-4	1½	1½
Physical Education 33, 34	½	½

ADDITIONAL MINIMUM REQUIREMENTS

In order to complete the requirements for the Bachelor of Science degree from the College of Agriculture a student must obtain, in addition to the required Freshman work, credit in each of several areas except as noted below.

These minimum requirements covering the four years of study follow:

Biological Sciences (Bact., Bot., Zool., Ent. 2)	3
Chemistry (Agr. Chem., or Chem.)	5
Economics (Agr. Econ., or Econ.)	6
English	5
Physics	4
Social Sciences (Govt., Hist., Phil., Psych., Soc., Ed. 41, 42, 52.)	6
Total	29

The Physics requirement is waived for Home Economics students.

CURRICULUMS

GENERAL AGRICULTURE.—This Curriculum is offered for the student who wishes to secure a broad, general training in many important branches of agriculture without specializing unduly in any particular department. A wider choice of subject matter is advised here than in the more specialized curriculums.

Students who expect to engage in farming will find this so-called General Curriculum, with its wide range of fundamental courses, a most profitable one. This Curriculum also prepares for Agricultural Extension work like that of a county agent, a boys' and girls' club leader, or a marketing or farm management investigator. For those expecting to specialize later in graduate work, the broad foundation of fundamental subject matter made possible by this Curriculum should provide a desirable background.

Agricultural and Biological Chemistry.—Students majoring in this Curriculum receive training in the various branches of General Chemistry and in their application to the growth and development of plants and animals. The methods used in the chemical analysis of plants and agricultural products and in the study of animal nutrition and metabolism are given special attention. The Curriculum is designed to provide a thorough foundation for those expecting to prepare themselves for teaching and research in agricultural colleges and experiment stations, or for technical positions in industries related to agriculture. A Freshman who wishes to major in this Department should take Chemistry 3-4 and also Mathematics 11, 13, 14 and 16 if his high-school preparation is adequate.

As this is a professional and specialized field, entrance to it at the beginning of the Sophomore Year, and continuance in it, are conditioned by a satisfactory record. An early conference with the Chairman of the Department is imperative.

Agricultural Economics.—The Curriculum in Agricultural Economics is designed to meet the needs of two groups of students: (1) those who are interested in becoming farmers, farm managers, farm credit representatives, county agricultural agents, managers of co-operatives or representatives of firms marketing farm products or selling supplies and services to farmers; and (2) those who wish to prepare for more specialized positions in agricultural colleges, experiment stations, government agencies or research departments of industrial firms servicing agriculture.

The student is trained in farm management and marketing problems and in appraising farm programs.

All students majoring in this field are expected to gain a good background in practical agriculture from courses in dairy, poultry, and other fields. Such courses are selected by the student on the basis of his interest and personal objectives. Those who are planning to prepare for professional work in Agricultural Economics will be advised in the selection of special courses.

Agricultural Engineering.—Candidates for the degree of Bachelor of Science in Agricultural Engineering will refer to the Agricultural Engineering Curriculum. Candidates for the Bachelor of Science degree with a major in Mechanized Agriculture will refer to "Mechanized Agriculture."

Agronomy.—Courses offered in this field provide a chance for the student to specialize in Soil Science or Field Crops.

Students who major in Soil Science may find employment in many specialized fields, such as Soil Physics, Soil Chemistry, Soil Micro-biology, Soil Fertility, Soil Classification and Mapping, and Soil Technology. Those who wish to specialize in Field Crops will be trained to pursue work in Crop Production, Crop Improvement, Plant Breeding, and related fields. Men with a fundamental training in Soils and Crops are fitted to take Federal Civil Service examinations to enter the Soil Conservation Service or divisions in the Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture.

Positions in research and teaching and in Agricultural Extension work are also available to men trained in soils and crops, particularly if those who desire them pursue further study in agronomic fields. Seed, feed, and fertilizer companies are eager to employ men with a broad training in Agronomy.

A well-equipped soils laboratory is maintained and near-by soil types and profiles are available for study. A great variety of plant material is maintained for use in the crops and seed laboratories and in field nurseries.

Animal Husbandry.—This Curriculum is offered to students who wish specialized training in the intelligent and practical selection, breeding, feeding, and management of horses, sheep, swine, and beef and dual-purpose cattle.

It provides basic knowledge and training for managing livestock farms, and prepares students for production and sales work with feed concerns and packing plants. Many graduates enter the field of Agricultural Extension work as specialists and as county agricultural agents. The subject matter is basic in preparation for graduate work in Animal Husbandry.

A course in meat and meat products is included. Some cultural subjects are required. Students are permitted to elect subjects in line with their capabilities and inclinations.

The Department maintains purebred herds of Milking Shorthorn and Hereford cattle; Chester White swine; flocks of Dorset and Shrophsire sheep; Belgian, Percheron, Morgan stallions, and Percheron and Morgan mares.

Botany.—The field of Botany as a profession, in general, is open only to those students who are willing to do graduate work leading to the M. S. or Ph.D. degrees. The principal fields of concentration in Botany are: (1) Pathology — the study of plant diseases, their causes and control; (2) Physiology — the study of plant-functioning with such practical applications as plant nutrition and other requirements for plant growth; (3) Taxonomy — plant classification and plant identification; (4) Ecology — which concerns the relationship of the plant to its environment; and (5) Morphology and Cytology —— the study of the anatomy, development and cellular organization of plants. Histological and cytological techniques including chromosome studies belong here. The undergraduate course to be taken in all these fields are nearly the same until the Junior and Senior Years. Some specialization should then be made. The student who graduates in Botany may take graduate work in Botany or in the related fields of Horticulture, Forestry, and Agronomy which require an extensive background in Botany. Although opportunities for those with advanced training in Botany are not as broad as in certain other fields, assistantships, research positions, and full-time teaching jobs are more available at present than in previous years. Opportunities for able botanists also occasionally occur in government work.

Dairy Husbandry.—Students majoring in Dairy Husbandry are offered specialized courses in (1) Dairy Production and (2) Dairy Manufacturing. Training in Dairy Production prepares students for the operation of modern dairy farms; for positions in the Agricultural Extension Service and Breed Association work; and for field, sales, and technical positions in the Dairy Farm Equipment and Feed Industry and for commercial dairy concerns.

Training in Dairy Manufacturing is particularly well suited to prepare students for executive and administrative positions in creamery and other dairy establishments. It also prepares for plant and laboratory positions in milk and milk-processing plants; and for inspectors of dairy products and dairy establishments in federal, state, and municipal service.

Both of these fields offer a broad fundamental training for those intending to pursue graduate study in preparation for more specialized work in dairy and related industries.

The University dairy herd, together with the daily operations in the market milk pasteurizing and ice cream units at the Dairy Building, contribute to the practical training of students in any one of several lines of the dairy industry.

The Dairy Husbandry Laboratories, located in the Dairy Building and in the Dairy Barn, are well equipped for instructional purposes. The equipment includes power churn, power separator, pasteurizers, coolers, ice cream freezers, bottler, refrigeration units, homogenizer, and a soaker-type bottle washer. The milk testing and bacteriological laboratories are equipped for chemical and bacteriological analyses of dairy products.

ENTOMOLOGY.—The Department of Entomology offers various courses for students who wish to specialize in the study of insects, insect life, and in the control of insects. Although the field of employment is limited, there are definite opportunities available to those who are qualified. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have specialized in this field.

Students who desire a broad fundamental training in Entomology and related fields will follow the program outlined as General Entomology. Those who wish to specialize in chemical control of insects, and who plan to take graduate work leading to a professional degree in that field, will follow a program to be outlined for Insect Toxicology. These students will be expected to take considerable Mathematics and Chemistry.

Students planning a career in Entomology are urged to consult with their adviser in regard to the selection of electives best suited to their needs.

FORESTRY.—The training and instructional work in Forestry is intended to meet the needs of three classes of students: (1) those who desire a foundation for professional or graduate work in Forestry; (2) those who wish to fit themselves for employment in Wildlife Management; and (3) those who intend to enter the field of Forest Recreation. All students take approximately the same program during the first two years, although it is necessary to make certain decisions rather early in the course. Attendance at an eight weeks' session of Summer Camp is required during the summer following the Sophomore Year, except for the Wildlife Management group who will attend camp at the end of the Junior Year.

Forestry Group. — This includes those students who wish to secure a general training in Forestry, but who do not care to spend more than four years in college. There is some latitude in the courses which the student may elect, but his efforts are directed toward securing a broad knowledge of the profession. Those who intend to enter the United States Forest Service, or to become teachers or research workers should plan to take advanced studies at some other institution, and should elect the courses necessary for admission to graduate school.

Wildlife Management Group. — The Wildlife Management curriculum emphasizes this field while giving the student an adequate training in General Forestry. This combination is considered essential, as a large part of the country's wildlife program of the future will be handled by men who are employed primarily as foresters.

Forest Recreation Group.—This curriculum is designed to prepare the student for positions connected with the management of public parks, camping grounds, etc., carried on as a part of a regular forestry program. Besides attending camp the student is expected to spend one summer in employment on a recreational area.

HOME ECONOMICS.—In Home Economics, a student who wishes to take a professional curriculum has three choices: (1) Hospital Dietetics (2) Institutional Administration or (3) Teacher Preparation for Secondary Schools or Home Demonstration or 4-H Club work in the Agricultural Extension Service. Others interested in following the profession of homemaking or in a broad general education, particularly applicable to women, are advised to major in Home Economics either in Agriculture or Liberal Arts. This Curriculum may also serve as pre-professional preparation for further training in child guidance, clothing and textiles, salesmanship, interior decoration and other lines. Miss Frances Platts, Room 211, Pettee Hall should be consulted for further details for the Liberal Arts program; Mrs. Helen McLaughlin, Pettee 209, for the general program in Agriculture. Several elective courses are offered for or are open to students who do not care to major in Home Economics.

HORTICULTURE.—Conditions of climate, soil, and market combine to make New Hampshire a state with great horticultural possibilities. Accordingly, the Department of Horticulture, with its excellent facilities and staff, offers instruction in three major fields: Pomology (fruit growing), Olericulture (vegatable growing), and Ornamental Horticulture with particular emphasis on Floriculture, Propagation, and Greenhouse Management.

Students who graduate with a major in Horticulture will have received the liberal training expected of a university graduate, a thorough preparation in the fundamental sciences underlying plant production, adequate training in General Horticulture, and, finally, specialization in the field chosen. The courses are designed to acquaint the student with the problems of the improvement, production, and marketing of fruits, vegetables, plants, or flowers. The training is such that superior students can pass the Federal Civil Service Examinations required for entrance into positions with the United States Department of Agriculture or find positions in research, teaching, or state agricultural extension services. It is usually expected that students will take graduate work if they intend to enter the professional field. University of New Hampshire graduates with a good scholastic record have had little difficulty in securing fellowships or scholarships in other colleges and universities.

Major students in the Department must elect a minimum of 11 semester credits in Advanced Horticulture and related courses, in addition to Hort. 2, 13, 91, 92, and 94, required of all majors. A special effort is made to see that outside work during the college year and work done during the vacation periods will provide sufficient practical experience before a student graduates, so that he has more than a theoretical knowledge of his profession. The extensive University orchards, gardens, and greenhouses are used as laboratories.

MECHANIZED AGRICULTURE.—A program offered by the Department of Agricultural Engineering for students who are interested in the production of crops and livestock, county agricultural agent work, soil conservation work, and in sales work dealing directly with farm people. Courses offered by the Department for students in this Curriculum appproach soil and water control, farm power and machinery, farm buildings, and electrical equipment from the point of view of the user and consumer rather than that of the designer.

POULTRY HUSBANDRY.—The Curriculum in Poultry Husbandry has been designed to offer students fundamental and special training in the practical and professional fields of Poultry.

The program of study prepares students for various lines of work such as: production, sales, and service with feed and equipment manufacturing concerns; marketing organizations, handling poultry and eggs; commercial hatcheries; poultry-farm managers, as well as for the operation of their own farms. By supplementing his undergraduate work with one or more years of graduate study, the superior student will find opportunities in the professional fields of teaching, agricultural extension, and research.

Major students are expected to take all courses offered in the Department. In addition, selected courses in other departments of the College are required in support of, and as a supplement to, the instruction given in the Department. However, the student elects these courses under guidance, and considerable latitude is offered. Special attention is given to the interests and ability of each student.

The Department works closely with the poultry industry in the State, which ranks high among those in the country. In this connection, frequent and full discussion is given in the classroom to broad problems of the industry.

A brief but comprehensive period of practical work is offered for those who lack sufficient experience in the actual care and production of chicks and laying birds. All the facilities of the University Plant are availabe for such students. This plant is stocked with both chickens and turkeys, and has modern equipment for carrying on its work.

PRE-VETERINARY CURRICULUM.—Students who contemplate veterinary medicine as a career should elect the Pre-Veterinary Curriculum. Successful completion of this Curriculum will meet the scholastic requirements for admission to an approved veterinary college. However, all veterinary colleges give first preference for admission to applicants from their respective states. The current number of applications for admission is tremendous. The few out-of-state students who will be admitted will necessarily have shown outstanding scholastic ability.

Athough two years of Pre-Veterinary training will meet the requirements of most veterinary colleges, it is desirable for a person to spend four years in Pre-Veterinary work and complete the requirements for the Bachelor's Degree.

TEACHER PREPARATION.—Under the provisions of the Smith-Hughes Act, the University of New Hampshire has been designed as the institution in this State for the preparation of Teachers of Agriculture. Vocational Agriculture offers a fertile field for young men who desire to follow the profession of teaching. The work is varied and interesting with opportunities for wide community contacts through the all-day, part-time, and evening school programs.

Agricultural teachers are encouraged to enter upon a program of graduate study as a means of professional growth. Successful completion of such study should result in greater opportunities for advancement in the field of Agricultural Education.

COLLEGE OF AGRICULTURE

Due to the nature of the duties performed by the teacher of Agriculture it is essential for a student to acquire a good foundation in all the predominating agricultural enterprises of the State. His course of study, therefore, will follow a broad general program rather than a specialization in any one particular field. Furthermore, he must meet the State requirements for certification which include 21 semester hours of professional education, and 8 credits of Agricultural Engineering.

SUGGESTED PROGRAMS

Except for minor variations, the required Freshman program is applicable to all agricultural students who are candidates for the Bachelor of Science degree. Military Science and Physical Education, which are *general curriculum requirements,* should be completed by the end of the Sophomore Year. "Additional Minimum Requirements" may be satisfied at any time prior to graduation but should be kept in mind when planning a schedule of courses for each semester during the Sophomore, Junior, and Senior Years. Beyond the Freshman program, the General Curriculum Requirements of the University, and the Additional Minimum Requirements of the Agricultural College, a student will select the remainder of his program in consultation with the supervisor of his curriculum.

The following curriculums suggest a plan of study applicable to most students, but are not intended as a list of required courses. It is assumed that the program will vary according to the needs of the individual student. It should be remembered that a student must complete an average of 17 credits per semester in order to accumulate a total of 136 credits in four academic years.

GENERAL AGRICULTURE

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agron. 11, 14, *Soils, Fertilizers and Soil Fertility*	4	3
Agron. 21, *Crop Production*	3	
Agr. Chem. 1, *Organic and Biological*	5	
D. H. 6, *Fundamentals of Dairying*		3
Phys. 1, *Introductory*	4	
P. H. 2, *Farm Poultry*		3
JUNIOR YEAR		
A. H. 11, 2, *Judging, Types and Market Classes*	1	3
A. H. 13, *Feeds and Feeding*	3	
D. H. 33, 34, *Cattle and Products Judging*	1	1
Econ. 1, *Principles*	3	
Ent. 41, *Insects of Orchard and Garden*	3	
Hort. 14, *Vegetable Gardening*		3
Zool. 49, *Genetics*	3	
SENIOR YEAR		
Agr. Econ. 14, *Farm Management*		4
Agron. 28, *Forage and Pasture Crops*		3
D. H. 64, *Milk Production*		3
Engl. 35, (23), *Public Speaking, Writing Technical Reports*	3	2
Hort. 53, *Orchard Fruits*	3	

GENERAL HOME ECONOMICS

Freshman Year	First Semester Credits	Second Semester Credits
P. E. 1, 2	1	1
Agr. 1, *Orientation*	1	
Biol. 1-2, or Bot. 1, Zool. 48	4	4–3
Engl. 1-2, *Freshman English*	3	3
H. E. 3, 4, *Clothing Selection*, Textiles	3	3
Humn. 1-2, *Humanities*	3	3
Sophomore Year		
Chem. 1-2 or 3-4, *General*	4	4
Engl. (choice to be approved by adviser)	3	3
H. E. 15-16, *Foods*	3	3
Psych. 1, *Elementary General*	3	
Soc. 44, *Social Psychology*		3
Zool. 17-18, *Human Anatomy, Human Physiology*	4	3
Junior Year		
Agr. Eng. 11, *Home Building*	2	
Chem. (choice to be approved by adviser)	5	
Econ. 1-2, *Principles*	3	3
H. E. 32, *Home Furnishing*		3
H. E. 33, *Home Management*	3	
Senior Year		
Bact. 3, *Elements of Microbiology*	3	
H. E. (35), *Home Management House*		3
H. E. 83, *Home and Family Life*	3	

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

The following program of study assumes the completion in the Freshman Year of mathematics sufficient to serve as the prerequisite to calculus. Otherwise, additional mathematics would need to be included. Chemistry 3-4 is preferred to Chemistry 1-2 for Freshmen.

Sophomore Year	First Semester Credits	Second Semester Credits
Agron. 11, 14, *Soils, Fertilizers and Soil Fertility*	4	3
Bact. 1, *General Bacteriology*	4	
Bact. 2, *Food and Sanitary Bacteriology*		4
Chem. 21, *Semi-micro Qualitative Analysis*	4	
Chem. 22, *Quantitative Analysis*		5
Math. 17, 18, *Calculus*	3	3
Junior Year		
Chem. 47-48, *Organic Chemistry*	5	5
Econ. 1-2, *Principles*	3	3
Lang. 1-2, *French or German*	3	3
Phys. 1-2, *Introductory Physics*	4	4

SENIOR YEAR

Agr. Chem. 51-52, *Physiological Chemistry*	5	5
Agr. Chem. 53-54, *Agricultural Analysis*	4	4
Engl. 35, *Public Speaking*	3	
Engl. (23), *Writing Technical Reports*		2

AGRICULTURAL ECONOMICS

This Curriculum will be arranged to fit the needs of the individual student. The selection of additional courses to establish a background in modern practical agriculture is recommended.

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, *Organic and Biological Chemistry*	5	
Agr. Econ. 12, *Economics of the Agricultural Industry*		3
Agron. 11, *Soils*	4	
Agron. 21, *Crop Production*	3	
D. H. 6, *Fundamentals of Dairying*		3
Econ. 1-2, *Principles of Economics*	3	3
Phys. 1, *Introductory Physics*	4	
P. H. 2, *Farm Poultry*	3	

JUNIOR YEAR

Agr. Econ. 14, *Farm Management*		4
Agr. Econ. 56, *Agricultural Marketing*		3
A. H. 13, *Feeds and Feeding*	3	
Econ. 31, *Economics and Business Statistics*	3	
Engl. 35, (23) *Public Speaking, Writing Technical Reports*	3	2
Govt. 1, *American Government*	3	
Hort. 14, *Elementary Vegetable Gardening*		3

SENIOR YEAR

Agr. Econ. 52, *Cooperative Business*		3
Agr. Econ. 60, *Agricultural Policy*		3
Econ. 51, *Labor Economics*	3	

AGRONOMY

The Agronomy program will vary considerably according to whether or not the student wishes to emphasize soil science or field crops, or whether he wishes to go on for advanced study.

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, *Organic and Biological Chemistry*	5	
Agron. 11, *Soils*	4	
Agron. 14, *Fertilizers and Soil Fertility*		3
Agron. 21, *Crop Production*	3	
Agron. 24, *Cereal and Grain Crops*		3
Phys. 1, *Introductory*	4	

Junior Year

Agron. 26, *Potatoes and other Cash Crops*		3
Agron. 28, *Forage and Pasture Crops*		3
Agron. 57, *Soil Physics*	3	
Agron. 58, *Soil Classification and Mapping*		3
Bact. 1, 6, *General Agriculture and Soil*	4	3
Bot. 40, *Plant Physiology*		4
Bot. 51, *Plant Pathology*	4	
Econ. 1, *Principles*	3	
Zool. 49, *Genetics*	3	

Senior Year

Agron. 59, *Soil Chemistry*	3	
Agron. 60, *Soil Conservation*		3
Agron. 71-72, *Agronomic Seminar*	1–3	1–3
Engl. 23, *Writing Technical Reports*	2	
Engl. (35), *Public Speaking*		3

ANIMAL HUSBANDRY

Sophomore Year	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, *Organic and Biological Chemistry*	5	
Agr. Chem. 4, *Animal Nutrition*		3
Agron. 11, *Soils*	4	
Agron. 21, *Crop Production*	3	
Econ. 1-2, *Principles*	3	3
D. H. 33, 36, *Dairy Cattle Judging*	1	1
Phys. 1, *Introductory*	4	

Junior Year

A. H. 11, 14, *Livestock Judging*	1	1
A. H. 13, *Feeds and Feeding*	3	
A. H. 15, 16, *Systematic Anatomy; Animal Diseases*	3	3
A. H. 18, *Meat and its Products; Livestock Markets*		3
Bact. 1, *General*	4	
Engl. (35), *Public Speaking*		3
Zool. 49, *Genetics*	3	

Senior Year

Agr. Econ. 14, *Farm Management*		4
A. H. 19, 20, *Horses and Beef Cattle, Sheep and Swine*	3	3
A. H. 21, *Light Horse Husbandry*	2	
A. H. 51, 52, *Animal Breeding, Seminar*	3	1–3
D. H. 23, *Dairy Cattle*	3	
D. H. 64, *Milk Production*		3
D. H. 65, *Market Milk*	3	

BOTANY

The Botany Curriculum will vary according to the special interest of the student, whether physiology, pathology, taxonomy, morphology or ecology.

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, 2, *Organic, Plant Chemistry*	5	3
Bact. 1, *General*	4	
Bot. 5, 6, *Plant Anatomy and Cytology, Systematic*	3	3
Bot. 12, *Morphology of the Vascular Plants*		4
Bot. 40, *Plant Physiology*		4
Econ. 1-2, *Principles*	3	3
Zool. 49, *Genetics*	3	

JUNIOR YEAR		
Agron. 11, *Soils*	4	
Bot. 51, 52, *Plant Pathology, Plant Disease Control*	3	3
Engl. 23, (35), *Technical Reports, Public Speaking*	2	3
Ger. 1, 2, *Elementary*	3	3
Phys. 1-2, *Introductory*	4	4

SENIOR YEAR		
Bot. 55, *Advanced Systematic*	4	
Bot. 57, 58, *Problems*	2–6	2–6

Recommended electives for the Botany Curriculum include: Hort. 2, Plant Propagation; Hort. 91, Plant Breeding; For. 25-26, Tree and Wood Identification.

DAIRY HUSBANDRY

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, 4, *Organic, Animal Nutrition*	5	3
Agron. 11, *Soils*	4	
Agron. 21, *Crop Production*	3	
A. H. 11, 2, *Livestock Judging, Types and Breeds*	1	3
D. H. 33, 34, *Dairy Products Judging, Dairy Cattle Judging*	1	1
Econ. 1-2, *Principles*	3	3

JUNIOR YEAR		
Agron. 14, *Fertilizers and Soil Fertility*		3
A. H. 13, *Feeds and Feeding*	3	
A. H. 15, 16, *Anatomy, Animal Diseases*	3	3
Bact. 1, *General*	4	
D. H. 27, 30, *Butter and Cheese, Dairy Bacteriology*	3	4
D. H. 36, *Advanced Judging*		1
Engl. (35), *Public Speaking*		3
Zool. 49, *Genetics*	3	

Senior Year

Agr. Econ. 14, *Farm Management*		4
Agr. Econ. 52, *Co-operative Business*		3
Agron. 28, *Forage and Pasture Crops*		3
A. H. 51, *Animal Breeding*	3	
D. H. 23, 62, *Dairy Cattle, Advanced Dairy Science*	3	2
D. H. 60, *Seminar*		2
D. H. 65, 64, *Market Milk, Milk Production*	3	3
D. H. 66, *Ice Cream*		3
Engl. 23, *Writing Technical Reports*	2	

For students who are interested in Dairy Manufacturing, the program of study will permit substitute courses in Business Administration for many of the production courses listed above.

ENTOMOLOGY

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Agr. Chem. 1, 2, *Organic, Plant Chemistry*	5	3
Econ. 1-2, *Principles*	3	3
Ent. 41, *Insects of Orchard and Garden*	3	
Phys. 1, *Introductory*	4	
Zool. 7-8, *General*	4	4

Junior Year

Bact. 1, *General Bacteriology*	4	
Bot. 6, *Systematic*		3
Engl. (35), *Public Speaking*		3
Engl. 25-26, *Advanced Composition*	3	3
Ent. 55, 56, *Household Insects, Forest Insects*	2	2
Ent. 57-58, *Advanced*	4	4
Zool. 49, *Genetics*	3	
Zool. 56, *Invertebrate*		4

Senior Year

Bot. 51, 40, *Plant Pathology, Plant Physiology*	3	4
Engl. 23, *Writing Technical Reports*	2	
Ent. 54, *Medical*		3
Ent. 59, 60, *Advanced Economic*	3	3
Lang. 1-2, *French or German*	3	3

Students who are interested in Insect Toxicology will follow the same general program of study except that they will complete additional courses in Mathematics and Chemistry selected in consultation with an adviser.

FORESTRY

SOPHOMORE YEAR	First Semester Credits	Second Semester Credits
Agr. Chem. 1, 2, *Organic and Biological, Plant*	5	3
Agron. 12, *Forest Soils*		4
C. E. 7, *Surveying*	2	
Econ. 1, *Principles*	3	
Ent. 2, *Elementary*		3
For. 27, 28, *Silvics, Mensuration*	3	4
Geog. 21, *Weather*	2	
Zool. 48, *Principles*		3
SUMMER CAMP		
For. 42 .... 10 crs.		
JUNIOR YEAR		
Agr. Econ. 12, *Agricultural Industry*		3
Bot. 51, 40, *Plant Pathology, Plant Physiology*	3	4
Engl. 23, *Writing Technical Reports*	2	
Ent. 56, *Forest Insects*		2
For. 29, 30, *Silviculture, Seeding & Planting*	3	3
For. (33), *Forest Protection*		3
For. 43, 44, *Advanced Mensuration, Economics & Finance*	3	3
For. 57, *Use and Application of Air Photos*	4	
Phys. 1, *Introductory*	4	
SENIOR YEAR		
Engl. 35, *Public Speaking*	3	
For. 26, *Wood Identification*		3
For. 31, 32, *Logging, Forest Products*	4	4
For. 37, 34, *Forest Recreation, Wildlife Management*	3	3
For. 39, 40, *Forest Management*	4	4
Social Science Electives	3	3

The programs suggested for students who are interested in Wildlife Management or Forest Recreation will vary somewhat from that suggested for General Forestry as shown above.

HORTICULTURE

SOPHOMORE YEAR	First Semester Credits	Second Semester Credits
Agr. Chem. 1, 2, *Organic, Plant*	5	3
Agron. 11, 14, *Soils, Fertilizers*	4	3
Econ. 1, *Principles*	3	
Ent. 41, *Insects of Orchard and Garden*	3	
Hort. 13, 2, *Judging, Propagation*	2	2

Junior Year

Bact. 1 or 3, *General or Elements of Microbiology*	3–4	
Bot. 51, 40, *Plant Pathology, Plant Physiology*	3	4
Hort. 94, *Plant Breeding*		3
Engl. 35, *Public Speaking*	3	
Phys. 1, *Introductory*	4	
Zool. 49, *Genetics*	3	

Senior Year

Agr. Econ. 14, *Farm Management*		4
Bot. 5, *Plant Anatomy and Cytology*	3	
Engl. 23, *Writing Technical Reports*	2	
Hort. 91-92, *Seminar*	1	1

Each student will select 11 additional credits in Horticulture according to his major interests. The following are suggested as desirable electives offered by other departments:

Agr. 58, *Soil Classification*
Arts 38, 39, *Elementary Photography*
Bot. 2, *General*
Bot. 3, *Plant World*
Bot. 6, *Systematic*
Bot. 52, *Plant Disease Control*

Bus. Ad. 1, 2, *Accounting*
Econ. 6, *Principles of Business*
Engl. 9-10, *News Writing*
Geol. 7, *General*
Met. 1, *Weather*
Arts 23, *Drawing and Design*

HOSPITAL DIETETICS

Freshman Year

	First Semester Credits	*Second Semester Credits*
P. E. 1, 2	1	1
Agr. 1, *Orientation*	1	
Biol. 1-2, *Man and the Living World*	4	4
Chem. 1-2 or 3-4, *General Chemistry*	4	4
Engl. 1-2, *Freshman English*	3	3
H. E. 15-16, *Foods*	3	3

Mathematics 2 is required of those who did not complete two units of high-school mathematics.

Sophomore Year

P. E. 3, 4	1	1
Agr. Chem. 1, *Organic and Biological*	5	
Agr. Chem. 6, *Chem. of Food and Nutrition*		3
Econ. 1-2, *Principles of Economics*	3	3
Psych. (1), *Elem. Gen. Psych.*		3
Soc. 1, 44, *Principles, Social Psychology*	3	3
Zool. 17-18, *Human Anatomy, Human Physiology*	4	4

*Junior Year

P. E. 5, 6	1	1
Bact. 1, *General Bacteriology*	4	
H. E. 25, 26, *Child Development*	3	3
H. E. 74, *Dietetics*		3
H. E. 49-50, *Quantity Cookery*	3	3

Senior Year

Agr. Eng. 12, *Home Equipment*		3
H. E. (35) *Home Management House*		3
H. E. 41, *Institutional Management*	3	
H. E. 43-44, *Institutional Practice*	2	2
H. E. 45, *Furniture and Textiles*	3	
H. E. (75), *Diet Therapy*		3
H. E.-Ed. 91, *Methods of Teaching*	3	

INSTITUTIONAL ADMINISTRATION

Freshman Year

	First Semester Credits	*Second Semester Credits*
P. E. 1,2	1	1
Agr. 1, *Orientation*	1	
Biol. 1-2, *Man and the Living World*	4	4
Chem. 1-2, *General*	4	4
Engl. 1-2, *Freshman English*	3	3
H. E. 15-16, *Foods*	3	3

Mathematics 2 is required of those students who did not complete two units of high-school mathematics.

Sophomore Year

P. E. 3, 4	1	1
Agr. Chem. 1, *Organic and Biological*	5	
Agr. Chem. 6, *Chemistry of Foods and Nutrition*		3
Econ. 1-2, *Principles*	3	3
Psych. (1), *Elementary General*		3
Soc. 1, 44, *Principles, Social Psychology*	3	3
Zool. 17-18, *Human Anatomy, Human Physiology*	4	4

*Junior Year

P. E. 5, 6	1	1
Bact. 1, *General Bacteriology*	4	
H. E. 34, *Consumer Problems*		3
H. E. 49-50, *Quantity Cookery*	3	3
H. E. 74, *Dietetics*		3

Senior Year

Agr. Eng. 12, *Home Equipment*		3
H. E. (35), *Home Management House*		3
H. E. 41, *Institutional Management*	3	
H. E. 43-44, *Institutional Practice*	2	2
H. E. 45, *Furniture and Textiles*	3	
H. E. (75), *Diet Therapy*		3

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*It is strongly recommended that during the summer between the Junior and Senior Years students have some practical experience for which they may receive 4-6 credits in *H. Ec. 48.*

MECHANIZED AGRICULTURE

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Military and Air Science, 3-4	1½	1½
P. E. 33-34	½	½
Agr. Chem. 1, *Organic and Biological*	5	
Agr. Eng. 17, 18, *Farm Shop*	2	2
Agron. 11, *Soils*	4	
Agron. 14, *Fertilizers and Soil Fertility*		3
Hort. 14, *Vegetable Gardening*		3
Phys. 1-2, *Introductory*	4	4
P. H. 2, *Farm Poultry*		3

JUNIOR YEAR		
Agr. Eng. 21, *Soil and Water Survey*	2	
Agr. Eng. 22, *Farm Power*		2
Agr. Eng. 23, *Farm Machinery*	2	
Agron. 28, *Forage and Pasture Crops*		3
Agron. 58, *Soil Classification and Mapping*		3
A. H. 2, *Types of Livestock*		3
A. H. 13, *Feeds and Feeding*	3	
Econ. (1), *Principles*		3
Engl. (23), *Writing Technical Reports*		2
For. 1, *Management of Farm Woodlands*	3	
Govt. 1, *American Government*	3	
M. E. 1-2, *Engineering Drawing (Modified)*	2	2
Soc. 37, *Urban and Rural*	3	

SENIOR YEAR		
Agr. 3-4, *Extension Work*	2	3
Agr. Econ. 14, *Farm Management*		4
Agr. Eng. 24, *Farm Structures*		2
Agr. Eng. 25, *Farm Wiring and Electrical Equipment*	2	
Agr. Eng. 29-30, *Seminar*	1	1
Agron. 60, *Soil Conservation*		3
Bact. 3, *Elements of Microbiology*	3	
D. H. 64, *Milk Production*		3
Engl. 35, *Public Speaking*	3	
Ent. 41, *Insects of Orchard and Garden*	3	
Hort. 54, *Small Fruit Culture*		2
Zool. 49, *Genetics*	3	

POULTRY HUSBANDRY

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, 4, *Organic, Animal Nutrition*	5	3
Agron. 11, *Soils*	4	
Econ. 1, *Principles*	3	
P. H. 17, 6, *Breeds and Judging, Feeding*	3	3
P. H. 23, 24, *Practice*	2	2

Junior Year

Agr. Econ. 12, *Agricultural Industry*		3
Bact. 1, *General*	4	
P. H. 29, 18, *Breeding, Incubation and Brooding*	2	3
P. H. 26, *Management*		3
Phys. 1, *Introductory*	4	
Zool. 49, *Genetics*	3	

Senior Year

Engl. 23, (35), *Writing Technical Reports, Public Speaking*	2	3
P. H. 19, 20, *Marketing, Diseases*	3	4
P. H. 7, 56, *Housing, Turkey Production*	2	3
P. H. 27, 28, *Seminar*	1	1
P. H. 53, 54, *Problems*	Arr.	Arr.

PRE-VETERINARY

In the Freshman Year, Pre-Veterinary majors will take Chemistry 3-4 as a prerequisite for more advanced chemistry in subsequent years. The program of study is so arranged that the student will meet the course requirements of most veterinary colleges at the end of the Sophomore Year. The student should make known to his adviser the name of the veterinary college to which he wishes to be admitted.

Sophomore Year	*First Semester Credits*	*Second Semester Credits*
Chem. 45, *Organic*	5	
Phys. 1-2, *Introductory*	4	4
Soc. 1, 44, *Principles, Social Psychology*	3	3
Zool. 7-8, *General*	4	4

Junior Year

A. H. 13, 2, *Feeds and Feeding, Types*	3	3
A. H. 11, 18, *Judging, Meat Products*	1	2
Bact. 1, 2, *General Food and Sanitary*	4	4
D. H. 64, *Milk Production*		3
Econ. 1-2, *Principles*	3	3
Engl. 23, (35), *Writing Technical Reports, Public Speaking*	2	3
Zool. 49, *Genetics*	3	

Senior Year

A. H. 19, 20, *Horses and Beef Cattle, Sheep and Swine*	3	3
Bact. 53, 8, *Immunology and Sirology, Pathogenic*	4	4
Engl. 25-26, *Advanced Compositions*	3	3
Govt. 1, 2, *American Government*	3	3

TEACHER PREPARATION IN AGRICULTURE

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Agr. Chem. 1, *Organic and Biological*	5	
Agr. Eng. 17, 18, *Farm Shop*	2	2
Agron. 11, 14, *Soils, Fertilizers and Soil Fertility*	4	3
D. H. 6, *Fundamentals of Dairying*		3
Ed. (41), *Principles of Educational Psychology*		3
Econ. 1, *Principles*	3	
Phys. 1, *Introductory*	4	
P. H. 2, *Farm Poultry*		3
JUNIOR YEAR		
Agr. Econ. 52, *Co-operative Business*		3
Agr. Eng. 23, *Farm Machinery*	2	
A. H. 13, *Feeds and Feeding*	3	
Ed. 52, *American Secondary Education*		3
Engl. 23, *Writing Technical Reports*	2	
Ed. 91, 92, *Agriculture-Education*	3	3
Engl. (35), *Public Speaking*		3
Ent. 41, *Insects of Orchard and Garden*	3	
Hort. 53, 14, *Orchard Fruits, Vegetable Gardening*	3	3
SENIOR YEAR		
Agr. Econ. 14, *Farm Management*		4
Agron. 28, *Forage and Pasture Crops*		3
Ed. 93, *Supervised Teaching*	13	

TEACHER PREPARATION IN HOME ECONOMICS

Students interested in the work of the Extension Service in Agriculture and Home Economics should follow this same general plan of study except that Extension courses will be substituted for the Education courses.

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
P. E. 1, 2	1	1
Agr. 1, *Orientation*	1	
Biol. 1-2, *Man and the Living World*	4	4
Chem. 1-2, *General*	4	4
Engl. 1-2, *Freshman English*	3	3
H. E. 3, 4, *Clothing Selection, Textiles*	3	3
SOPHOMORE YEAR		
P. E. 3, 4	1	1
Agr. Chem. 1, *Organic and Biological*	5	
Agr. Chem. 6, *Chemistry of Food and Nutrition*		3
Agr. Eng. 12, *Home Equipment*		3
Ed. 41, *Principles of Educational Psychology*	3	
Ed. 42, *Educational Psychology of Adolescence*		3
H. E. 5-6, *Clothing Construction*	3	3
H. E. 15-16, *Foods*	3	3

Junior Year

P. E. 5, 6	1	1
Agr. Eng. 11, *Home Building*	2	
Ed. 51, 52, *American Secondary Education*	3	3
Ed. 61, *Teaching in Secondary Schools*	4	
H. E. 25, 26, *Child Development*	3	3
H. E. 32, *Home Furnishing*		3
H. E. 62, *Sewing for the Home*		2
H. E. 72, *Advanced Problems in Foods*		2
H. E. 74, *Dietetics*		3

Senior Year

HE-Ed. 91, *Teaching High-School Home Economics*	3	
HE-Ed. 94, *Supervised Teaching*		6–12
HE-Ed. 96, *Seminar*		3
H. E. 33, *Home Management*	3	
H. E. 35, *Home Management House*	3	
H. E. 83, *Home and Family Life*	3	

BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING DEGREE

Agricultural Engineering — Each candidate for the degree of Bachelor of Science in Agricultural Engineering must complete a minimum of 144 semester credits including courses specifically required by the curriculums as outlined, and must achieve a grade point average of at least 1.8. Further requirements are explained in the footnotes associated with the outline.

Students who elect this course of study are expected to prepare for engineering service in rural communities; for teaching, research, and extension work in colleges, experiment stations, and government agencies in fields which require engineering application; for positions in the manufacture and sale of farm machinery and farm power equipment; for advisory and managerial posts in connection with agricultural development; for positions with farm buildings and materials concerns; and for work relating to the increased use of electricity in agriculture.

Freshman Year	*First Semester Credits*	*Second Semester Credits*
P. E. 31-32	½	½
Military and Air Science, 1-2	1½	1½
Agr. Eng. 15, *Agr. Engineering Shop*	1	
Chem. 3-4, *General Chemistry*	4	4
Engl. 1-2, *Freshman English*	3	3
Math. 11, *Algebra*	3	
Math. 13, *Trigonometry*	3	
Math. 14, *Analytic Geometry*		3
Math. 16, *Calculus I*		3
M. E. 1-2, *Engineering Drawing*	3	2
*Electives		0 or 3
	19	17 or 20

SOPHOMORE YEAR

P. E. 33-34	½	½
Military and Air Science, 1-2	1½	1½
C. E. 2, *Surveying*		2
Math. 17-18, *Calculus*	3	3
M. E. 4, *Kinematics*		3
Phys. 21-22, *General Physics*	6	6
*Electives	6 or 9	3
	17 or 20	19

JUNIOR YEAR

Agr. Eng. 31, *Soil and Water Engineering*	3	
Agr. Eng. 32, *I. C. Engines for Agriculture*		3
Agr. Eng. 40, *Problem-Seminar*	0	0
E. E. 37-38 (or E. E. 33 and Elective)	4	4
M. E. 7-8, *Mechanics*	4	4
M. E. 23-24, *Thermodynamics*	3	3
M. E. 29-30, *Mechanical Laboratory*	2	1
*Electives	3 or 4	3
	19 or 20	18

SENIOR YEAR

Agr. Eng. 33, *Agricultural Machinery*	3	
Agr. Eng. 34, *Agricultural Structures*		3
Agr. Eng. 35, *Electrical Application in Agriculture*	3	
Agr. Eng. (40) *Problem-Seminar*	0	0
Engl. 23, *Writing Technical Reports*	2	
Engl. 35, *Public Speaking*	3	
*Electives	6	15
	17	18

Note: 144 semester credits are an absolute minimum for the degree of Bachelor of Science in Agricultural Engineering. Students will be encouraged to take as many as 150 semester credits to obtain a well rounded agricultural background.

*Electives: In the selection of electives all students working for the degree of Bachelor of Science in Agricultural Engineering must select: (1) two courses of approval social science; (2) the course Economics 1 (Econ. 2 also advisable in some cases); (3) agricultural courses (other than courses in agricultural engineering) including Agr. Ec. 14 and Agron. 11 sufficient to total 19 semester credits; (4) one or more approved courses from the College of Technology having bearing on the individual's needs and interests.

Summer Employment: Ten weeks of agricultural employment are required of all candidates for the degree during some summer session (preferably between the Sophomore and Junior Years). This employment must be approved by the agricultural engineering staff and the Dean of the College. For those students having exceptional experience of this type the requirement will be waived upon satisfactory completion of a special comprehensive examination, administered as directed by the Dean of the College of Agriculture.

Summer Session: On approval (or recommendation) of the Agricultural Engineering staff, some students may take a summer session or an additional semester in which to complete their requirements for the degree in order to lighten their load during the other eight semesters.

THE APPLIED FARMING COURSE

A Two-Year Non-Degree Curriculum

For one reason or another many young people find it unfeasible to attend the College of Agriculture for four years as a candidate for an academic degree. The Applied Farming Course at the University of New Hampshire offers to such young men and women who are interested in farming and allied occupations the opportunity to secure scientific and practical agricultural training in two years of study. This vocational course is designed particularly for those who wish to become farmers or to seek employment in related activities. Some of the more common types of opportunities available for the two-year student follow:

Farming—owner, renter, operator
Farm manager or estate superintendent
Herdsman or assistant
Milk plant operator or assistant
Poultry plant foreman
Feed and fertilizer store operator or assistant
Greenhouse or landscape work
Skilled worker for nurserymen and seedsmen
Farm machinery worker — sales, service, or operation
Worker in retail agricultural marketing
Milk testers
Caretaker of estate
Superintendent, foreman, or worker in parks
Worker in a commercial dairy manufacturing and distributing plant

Admission Requirements

The Applied Farming Course is open to both young men and young women. Graduates of high schools will be admitted irrespective of age. Applicants who are not high-school graduates must be 18 years of age and must have had at least two years of high-school work or its equivalent. Judgment and understanding will be carefully considered in determining those who will be admitted. A farm background, though not required, will prove exceptionally valuable.

Requirements for Graduation

The completion of the Applied Farming Course requires two calendar years. The instruction is divided as follows: the student obtains two semesters of classroom and laboratory work on Campus, followed by a summer of "Supervised Agricultural Placement" each year. However, it is possible for a person to attend the University in the Applied Farming Course for only two or more semesters and acquire considerable valuable information, and first-hand knowledge of farming. Upon satisfactory completion of four semesters on Campus, with a minimum of 64 semester credits, plus two summers of Agricultural Placement in the order described, the student will be awarded a certificate of graduation.

The Agricultural Placement will be adapted to the personal needs and interests of the individual. This work may be conducted on the home farm, on some good commercial farm known to the student, or in some related agricultural occupation in which the student plans to engage. All placement situations selected by the student, through his own initiative, must be approved by the Applied Farming staff. Every effort will be made to find suitable placement positions for students who are unable to locate such positions for themselves.

This practical training, required during each summer, will be under the direct guidance and supervision of the teaching staff. Certain records and reports are required of the student while on placement, and no student will be granted a certificate until such records and reports are complete.

Major Fields of Instruction

There are four major fields of instruction available: Dairying, General Farming, Horticulture, and Poultry. The student will select the one he wishes to pursue and may elect courses in other fields in order to provide for a well-balanced program.

Facilities for Instruction

Facilities of the University, including the University Farm, Dairy Herd, Milk Plant, Poultry Plant, Horticultural Farm, Livestock Department, greenhouses, and laboratories, are available for instructional purposes.

Student Aid

Employment is usually available for the student who needs it and is willing to work. Tuition Grants amounting to approximately one half the tuition are available in limited numbers for residents of New Hampshire. These Tuition Grants will be awarded to such applicants as appear upon investigation to be needy and deserving. It is hoped that every worthy individual who could not otherwise attend may be helped in this way. However, these funds are by no means inexhaustible and prospective students are urged to apply early if they need help.

Requests for Information

Persons who are interested in the Applied Farming Course should write for a complete descriptive catalogue. Such requests should be made to the Applied Farming Course, 14 Putnam Hall, University of New Hampshire, Durham, N. H.

COLLEGE OF LIBERAL ARTS

EDWARD Y. BLEWETT, *Dean*
PAUL E. SCHAEFER, *Assistant Dean*

DEPARTMENTS

ARTS
Fine Arts, Design, Crafts, Occupational Therapy, and Photography

BACTERIOLOGY
Medical Technology

ECONOMICS AND BUSINESS ADMINISTRATION
Business, Economics, and Secretarial Studies

EDUCATION

ENGLISH
Speech

GEOLOGY AND GEOGRAPHY

GOVERNMENT
Bureau of Government Research

HISTORY

HOTEL ADMINISTRATION

LANGUAGES
French, German, Greek, Italian, Latin, and Spanish

MUSIC

PHILOSOPHY

PSYCHOLOGY

SOCIOLOGY
Social Service

ZOOLOGY
Nursing and Pre-Medicine

The Departments of Chemistry, Mathematics, and Physics in the College of Technology, and the Departments of Botany, Entomology, and Home Economics in the College of Agriculture offer certain major programs for students in the College of Liberal Arts.

PURPOSE AND OBJECTIVES

The College of Liberal Arts exists to serve society through meeting the vital educational needs of students on the Campus or in the State. While it prepares some students for scholarly achievement in graduate and professional schools and trains others for immediate gainful service, it develops in all its students understanding, interests, appreciation, and abilities which make possible the living of a richer and more satisfying life.

It is the purpose of the College of Liberal Arts to help all its students to become better adjusted to the world in which they live, to increase their efficiency as students, to learn how to work and to enjoy work as well as leisure, to solve their college and life problems, and to prepare themselves for intelligent participation in the activities of modern life as socially competent human beings willing to meet their responsibilities to society.

To accomplish its general educational purpose, the College of Liberal Arts co-operates with its students in their efforts to acquire:

(1) The ability to understand and use language, particularly English, for clear and effective interchange of ideas;

(2) An understanding and appreciation of the principles of the physical and biological sciences as they apply to man;

(3) An understanding of the principles underlying the social, psychological, political, and economic activities of man;

(4) An understanding and appreciation of all peoples and their cultures, both contemporary and historical, for intelligent participation in society;

(5) An understanding and appreciation of literature and the others arts;

(6) An understanding and appreciation of the religious heritage of man and its significance for present-day living;

(7) An understanding of personal and community health;

(8) An understanding of the interrelation of the various fields of knowledge;

(9) A competence in a selected field of knowledge, based on a concentration of studies for vocational or other interests;

(10) Aid in selecting and preparing for a suitable profession or vocation;

(11) A variety of interests outside of the selected field of knowledge, for the purpose of providing avocations or occupations for leisure time in post-college days;

(12) An eagerness for knowledge as a means to continuous self-education;

(13) The ability to seek, discover, and analyze data and therefrom make valid generalizations;

(14) The ability to form unbiased and rational judgments of other individuals and their ideas;

(15) The desire to discover and accept responsibilities, for the improvement of human living;

(16) Principles and convictions about life which may change as experience increases, and upon which their whole conduct shall be founded.

ORGANIZATION

The development of common interests and the co-ordination of educational efforts in behalf of students in the College are promoted by Divisions as follows: Biological Sciences, Humanities, Physical Sciences, Social Sciences, and Teacher Education. The personnel of each division includes all Faculty members assigned to departments of the College, and to departments of other colleges which are authorized to offer major programs or prescribed curriculums in the College of Liberal Arts.

The *Humanities Division* is composed of the staffs of the Departments of The Arts, English, Languages, Music, and Philosophy. The *Social Sciences Division* is composed of the staffs of the Departments of Economics and Business Administration, Government, History, Hotel Administration, Psychology, Sociology, and the Department of Home Economics in the College of Agriculture. The *Physical Sciences Division* is composed of the staffs of the Department of Geology and Geography, and the Departments of Chemistry, Mathematics, and Physics in the College of Technology. The *Biological Sciences Division* is composed of the staffs of the Departments of Bacteriology and Zoology, and the Departments of Botany and Entomology in the College of Agriculture. The *Division of Teacher Education* consists of the members of the instructional staff of the University who are teaching professional courses in Education. These include courses in the problems of teaching the subjects taught in the public schools and the courses in Physical Education, in The Arts, and in Music, designed to prepare teachers.

The offerings of the College of Liberal Arts are divided into two groups: the *General Liberal Arts Curriculum* and the *Prescribed Curriculums.* The descriptions of the University Teacher Preparation Curriculums follow the Prescribed Curriculums.

COLLEGE OF LIBERAL ARTS

THE GENERAL LIBERAL ARTS CURRICULUM

The General Liberal Arts Curriculum is intended primarily to give opportunity for a broad, liberal program, a general education leading to the Bachelor of Arts Degree.

A student enrolled in the General Liberal Arts Curriculum will major in some subject or field of knowledge. Some of these major programs offer, at least in part, direct professional training. The *General Liberal Arts Curriculum* must not be confused with the *Prescribed Curriculums.* The latter are essentially professional in character.

The objectives, opportunities, and requirements of majors in the General Liberal Arts Curriculum are described in the paragraphs which follow. It is possible, also, for students in the General Liberal Arts Curriculum to arrange programs of study in addition to those described below, although such students will be held strictly to the University and College requirements of the General Liberal Arts Curriculum. *Students interested in arranging special programs of study should consult the Dean of the College.*

The Arts

The courses in this Department are designed to develop intelligent enjoyment and a critical understanding of art, and to provide facilities for creative expression.

Several types of programs may be arranged for individual students. For some who have special creative abilities there are courses in Painting, Sculpture, Ceramics, Crafts, Photography, and Design. For others who are interested primarily in the application of art to business and industry, there are opportunities for study in Industrial Design, Advertising Art, Photography, Interior Decoration, and Costume Construction and Design. The Department also offers opportunity to all who are interested particularly in the critical appreciation of art.

Students majoring in other areas in which a knowledge of Arts is desirable, such as Business, Education, and Hotel Administration, should consider taking one or several courses in The Arts.

Students interested in teaching art in the secondary schools are advised to consult the Art Education Curriculum.

Students majoring in The Arts are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They must also earn 24 semester credits, with grades of C or better, in courses in The Arts. The following courses are required for Arts majors: Arts 23, or Arts 24, *Elementary Drawing and Design* (does not carry major credit); Arts 31, 32, *Introduction to the Arts.* Courses in Dramatics, Literature and Music may be approved as related work for a major in The Arts with the consent of the supervisor and the College Dean. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his supervisor in personal conference. An assigned major work and/or a paper in the student's area of specialization will be required in the Senior Year.

Students interested in majoring in *The Arts* are advised to consult with the supervisor, Professor G. R. Thomas, Room 209, Hewitt Hall.

Bacteriology

Students interested in the study of bacteria and related micro-organisms should register as majors in Bacteriology. Such students may prepare themselves for positions in federal, state or city laboratories and for employment in universities, experiment stations, research institutes, and industrial organizations.

The program is arranged to meet the needs of two groups of majors; *i.e.*, those who plan to obtain employment as laboratory technicians after receiving the Bachelor of Arts degree and those who plan to take graduate work in Bacteriology, which is necessary for advancement and preferred employment in the field. Students primarily interested in hospital laboratory work should consult the Medical Technology Curriculum.

Students who major in Bacteriology are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85. They are expected also to complete courses offered by the Department, and by related departments, to a total of 24 semester credits, with grades of C or better. *A course in Organic Chemistry is also required for Bacteriology majors but cannot be counted as part of these 24 major credits.* The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his supervisor in personal conference.

Students interested in majoring in *Bacteriology* are advised to consult with the supervisor, Professor L. W. Slanetz, Room 215, Nesmith Hall.

Biology

Students who are interested in a broad training in the life sciences are advised to major in Biology. Such students will be required to take courses in Bacteriology, Botany, Entomology, and Zoology in building up a program. The field, however, is so inclusive that the majority of students will find it desirable to include one or two additional courses in one of the subdivisions, such as Bacteriology, Botany or Zoology. In addition, it is suggested to students who desire to study Biology for general education, that, those who are interested in *Applied Biology* and *Secondary-School Teacher Preparation* register as Biology majors.

TEACHER PREPARATION — Students who are planning to teach Biology in secondary schools are urged to plan for practice teaching during the Senior Year. As few positions are available in any year for teaching Biology alone, a student should include in his program of study courses which will qualify him for teaching other sciences.

APPLIED BIOLOGY, (*Fish and Game Management, etc.*) — Students preparing for positions which involve the application of the science of Biology, such as those frequently listed by the Federal Civil Service and by the State Governments, should follow the general program for Biology majors and should elect one or two additional courses in fields of Applied Biology. The division is well fitted to prepare students for work in Fish and Game Management, Conservation Education, and in State Departments of Conservation. Students preparing for professions in this group should plan to secure advanced degrees since positions in these fields are difficult to secure without graduate study. Students who are interested in hospital laboratory work should consult the *Prescribed Medical Technology* Curriculum.

Satisfactory completion of the requirements of a Biology major will generally qualify students for admission to graduate schools to specialize in Biology or in one of its major subdivisions.

Students who major in Biology are expected to meet in full the requirements of the General Liberal Arts Curriculum (see page 85). They are expected also to complete courses offered by the Division to a total of 24 semester credits (exclusive of Biology 1-2) with a grade of C or better. The minimum course requirements for Biology majors include Bacteriology 1; Botany 3; one course selected from Botany 6, 12, 40, or 42; Entomology 2, Zoology 7; and one other course in Zoology (except Zoology 87-88 or 97-98). *Biology majors are also required to complete Chemistry 3-4 and eight additional hours in physical science (Chemistry, Geology, Mathematics, Physics). These courses in physical science cannot be offered as major credit.* Students interested in majoring in *Biology* are advised to consult with the supervisor, Professor M. Jean Allen, Room 219A, Nesmith Hall.

Botany

Students who are interested in plant life are advised to consider registration as majors in Botany. Such students, except for those who concentrate in Botany as part of a general education, should expect to continue in graduate study here or elsewhere. Government work, institutional research, certain types of industrial positions, and college teaching are open to Botany students with advanced preparation. The principal fields of concentration in Botany are: (1) Pathology, (2) Physiology, (3) Taxonomy, (4) Ecology, and (5) Morphology and Cytology.

Students who major in Botany are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They must also complete courses offered by the Department, to a total of 24 semester credits with grades of C or better. Courses in other departments closely related to the major courses may be counted with the consent of the major supervisor and the College Dean. A broad background in chemistry and other biological sciences is considered essential for most majors.

The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his supervisor in personal conference.

Students interested in majoring in *Botany* are advised to consult with the supervisor, Professor A. R. Hodgdon, Room 218, Nesmith Hall.

Chemistry

Students who are interested in the study of Chemistry will find opportunities in different fields such as (1) individual work involving the development of processes or production activities or sales work based on a scientific knowledge of the marketable product; (2) the teaching of Chemistry and allied subjects in secondary schools or of Chemistry in colleges; (3) graduate study for those students who are interested and particularly proficient in their undergraduate work.

The University offers two channels for study of Chemistry; majoring in the subject in the College of Liberal Arts, or enrolling in the Prescribed Curriculum in Chemistry in the College of Technology. In the College of Liberal Arts a major should complete Chemistry 3-4 or 3-6, *General Chemistry*, and Mathematics 11, 13, 14, 16, and in addition other courses offered by the Department in *Analytical, Organic, and Physical Chemistry* to a minimum of 24 semester credits, with grades of C or better. According to the students' interests, other supporting subjects may be elected to form a broad program of study and prepare for some one of the opportunities listed above. Majors in

Chemistry are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85.

The Department is equipped to furnish the preparation necessary for teaching Chemistry in secondary schools. As very few positions are available in any year for teaching Chemistry alone, a student should consider a program of study which may qualify him for teaching Chemistry and other sciences, and should consult Professor Iddles and Professor T. O. Marshall of the Department of Education. Students who are interested in teaching Chemistry in college are advised to plan on graduate study. Students who plan to major in *Chemistry* are advised to consult with the supervisor, Professor H. A. Iddles, Room 117, James Hall.

Economics

Students who are interested in economic and business life, but do not desire to specialize intensively in the Business Curriculum or the Secretarial Curriculum are advised to consider registration as majors in Economics. Students who intend to enter upon graduate study in Economics should plan to major in this field as undergraduates. An increasing number of opportunities in business and the public service are open to young people who possess graduate preparation in Economics.

Business positions in retail stores, chain stores, banks, sales organizations, and general business offices, insurance, and other firms, have been successfully filled by graduates of the University who have majored in Economics. The Business Curriculum provides specific preparation for several of these fields by reason of its specialized requirements. A student who desires breadth in his education, with an emphasis on Economics, is counselled to major in the Department.

The Department is equipped to furnish the preparation necessary for teaching Economics in secondary schools. As very few positions are available in any year for teaching Economics alone, a student should consider a program of study which may qualify him for teaching Economics and other social studies, and should consult the supervisor, and Professor T. O. Marshall of the Department of Education.

Students who major in Economics are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They are required to complete successfully Economics 1-2, *Principles of Economics;* and Economics 31, *Economic and Business Statistics.* They are required to complete 24 semester credits of Economics, with grades of C or better. Of these 24 semester credits, 12 credits must be in courses in Economics numbered 51 or higher. *Major credit towards the 12 semester hours required in courses numbered above 50 will be approved in the case of transfer students only if such courses have been taken as upper division courses, i.e., in the Junior or Senior Year.* Individual programs will be arranged to meet the needs of the individual student. *Business Administration*, 1-2, 21-22, 68, and 70 may be counted for major credit in *Economics. Business Administration* 68 and 70 may be counted in partial fulfillment of the requirement that 12 semester credits be in courses numbered 51 or higher.

Students who are interested in a program in the Department of Economics and Business Administration should consult the Chairman of the Department, Professor J. A. Hogan, Room 212, Morrill Hall. Students interested in a major in *Economics* will be assigned to Professor C. M. Degler or some other member of the Department who will act as the supervisor for the duration of the student's course.

Education

Students who are interested in preparing themselves for teaching in the secondary schools and who do not desire to follow any of the University Teacher Preparation Curriculums should consult with Professor T. O. Marshall of the Department of Education, Room 3, Murkland Hall. Under most circumstances it is possible for such students to prepare themselves for teaching as majors in the subject-matter departments in which they desire to teach. In other instances, it may be wise for them to do their work as majors in Education.

One group majoring in Education does so to prepare to teach in secondary schools. They are required to complete 24 semester credits in Education, with grades of C or better, *which must include a minimum of six semester credits in supervised practice teaching and a minimum of 15 semester credits in Education courses other than practice teaching.* These students are also required to complete, with an average grade of at least C, (1) a teaching major of at least 24 semester credits of post-secondary school work in a subject-matter field, and (2) either a second teaching major of at least 18 semester credits, or two teaching minors of 12 semester credits each.

A second group of majors in Education is composed of those students who are interested in teaching or in supervising in elementary schools, and who are graduates of two-or three-year Normal Schools or Teachers Colleges. They are required to complete, with grades of C or better, 12 semester credits of work in Elementary Education selected from the advanced courses in that subject offered in the Summer Session as a part of the total credits which are required of them as candidates for the Degree of Bachelor of Arts. Such students will select the remainder of their major programs with the advice and approval of the Chairman of the Department of Education. (See special Language requirements, page 85).

While some courses offered in Education are designed to be of interest to the general student, only those students who have definitely decided to prepare themselves for the teaching profession should seriously consider majoring in the Department of Education. *All students, before entering Education 61, are required to take a battery of teacher aptitude examinations.*

Professor T. O. Marshall, Room 3, Murkland Hall, is the supervisor of all majors in *Education.* Arrangements will be made, however, to enable majors in Education to be advised in particular problems by members of the staff who are best qualified to be of service to them.

English

Majors in *English* are divided into three groups; *first,* those students who seek a liberal education with the emphasis upon the study of English and American literature; *second,* those who plan, immediately after graduation, to begin their chosen work and desire as a foundation for it a greater knowledge of English and American literature; and *third,* those who intend to use their undergraduate work in English and American literature as a preparation for graduate work. Concentration in the field of English and American literature is of definite value to students in the second group who are planning to enter library work, radio, publishing, writing, the theater, or teaching in the secondary school; and to those in the third group who contemplate work in the theater or in English and American literature. For all three groups, study of English and American literature trains the mind in logic and broadens the understanding and appreciation of the thought of the great minds of the past.

The Department of English offers the student wishing to major in English two programs of study: the *literature major* and the *teaching major.*

I. A student taking the *literature major*, in addition to meeting in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85 of the Catalogue, is required to take without major credit English 25, English 35, or English 43. He must earn grades of C or better in 24 semester credits in courses in English and American literature numbered above 50. For his major he must elect one semester's work in the *Great Figure* courses; one semester of work in each of two *Century* or *Period* courses: one semester of work in each of two *Advanced American Literature* courses; and one semester of work in *Type* courses. He is required to take two semesters of *Shakespeare* (which cannot be counted in satisfaction of the requirement of a *Great Figure* course.) At the end of the Senior Year he must pass a written examination of English and American literature. To prepare the major for the examination the Department issues a syllabus of the work to be covered.

To supplement his major program, the *literature major* is advised to take courses in history, particularly in English, Modern European, and American history; the survey of modern European literature; and at least one modern language.

II. The *teaching major* must, of course, meet in full the requirements of the General Liberal Arts Curriculum (p. 85) and the state certification requirements for teaching. He is also required to take the following courses: English 13, 14: *An Introduction to English Literature*; English 16: the second semester of *A Survey of American Literature*; English 25: *Advanced Composition;* English 27: *English Grammar;* English 22: *Writing for the Newspaper*, English 33: *Discussion and Debate, or* English 48: *Dramatics Workshop;* English 43, 44, 45: *Reading for Thought* (exposition, fiction, and poetry) ; English 57 *or* 58; *Shakespeare's Plays;* English-Education 91: *Problems in the Teaching of High-School English*; and English 99: *Speech for Teachers.* In addition the *teaching major* must earn grades of C or better in 24 semester hours from the courses listed above.

Students who are interested in majoring in *English* should consult the supervisor, Professor S. H. Bingham, Room 118, Murkland Hall.

Entomology

The Department of Entomology offers various courses for students who wish to concentrate on the study of insects, insect life, and the control of insects. Although the field of employment is limited, there are definite opportunities available to those who are qualified. The majority of these opportunities are in the public service, although commercial and industrial firms also employ college graduates who have concentrated in Entomology. Graduate study is desirable for the student who seeks high achievement in Entomology. A more intensive program in Entomology may be secured in the Prescribed Curriculum offered in the College of Agriculture.

Students who major in *Entomology* are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85. They are expected also to complete successfully courses offered by the Department, to a total of 24 semester credits, with grades of C or better. Courses in other departments may be counted with the consent of the major supervisor and the College Dean. Outlines of specific suggested programs of study are available to the student upon request to Professor J. G. Conklin, supervisor, Room 16, Nesmith Hall.

Geology

The field of Geology includes the earth sciences. This is not alone the study of minerals, rocks, and evidence of prehistoric life. It includes also the history of the earth from its beginning, as well as the evolution of the landscape, and other environmntal features which have influenced the development of life on the earth, including man.

Students who are interested in the earth sciences, both those who expect to make some phase of Geology their life work, and those who desire to build a program of liberal studies around a core of geological and related subjects, are advised to register as majors in *Geology.*

The search for new sources of essential mineral resources and the development of new uses for certain minerals have emphasized the need for men trained in the earth sciences. Positions as mining geologists, petroleum geologists, mine operators, state survey geologists, and university and college professors of geology and mineralogy have been successfully filled by graduates of the University who have majored in Geology. Other former major students are teaching in high schools or are in business, some in fields where their geologic training is useful, as in the cement and mining-machine industries.

Students who major in Geology are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85. They are expected also to complete Geology 1-2, *Principles of Geology*, and, in addition, courses in Geology or related courses approved by the supervisor and the College Dean to a total of 24 semester credits with grades of C or better. The courses of each major program are selected to meet the needs of the individual student, as determined by the student and his supervisor in personal conference.

At the end of the Senior Year, a student, who majors in Geology, must prepare a satisfactory paper, approved by his supervisor, in his field of concentration.

Students who are interested in majoring in *Geology* are advised to consult with the supervisor, Professor T. R. Meyers, Room 112, Conant Hall. After a student's major interest is determined, the advice, assistance, and counsel of one or more additional members of the Department will be sought where a special area of concentration is contemplated by the student. For example, the student whose special interest lies in geographic or meteorologic fields will be assigned to the staff member responsible for these fields.

Government

The courses offered by the Department of Government are designed to aid the student in gaining a knowledge of the nature, functions, and problems of Government, and of the place of Government in the modern world. For this general purpose, courses are offered in public affairs — local, state, national, and international. Some of the courses listed in the Department are chiefly intended to provide information needed for intelligent and responsible citizenship, and to provide a part of a liberal education. Others are of a specialized nature and have been planned to provide basic preparation for professional work.

By specializing in one of several programs of Government, the major student may prepare himself for (1) graduate study in Political Science and Government, (2) Public Administration, (3) Research in Government, (4) The Study of Law, (5) graduate study for the Foreign Service, (6) teaching Government courses in secondary schools. Students who are preparing to teach Government courses in the secondary schools should consult with Professor T. O. Marshall of the Department of Education in planning a program of study. Ordinarily, prospective teachers in this field will find it necessary to teach related courses in the social sciences.

For students with a special interest in Public Administration, a limited number of *Internships in Public Office* (Soc. Sci. 81) have been established, which permit Senior students to obtain firsthand knowledge of public service by working in an office in the State Capitol for a semester for which they receive full college credit. Majors in Government have also an unusual opportunity for mastering research techniques and information concerning the state and local government of New Hampshire in the Bureau of Government Research.

Majors in Government are expected to meet all the requirements of the General Liberal Arts Curriculum on page 85. All major students are required to take Government 1, *American Government*, and Government 2, *Problems of American Government.* Students who expect to major in Government are advised to register for these courses, the Freshman Year. Students majoring in Government are also required to complete a research paper approved by the staff. This project constitutes the chief part of the Research Problems course, (Government 65, 66). A major consists of a minimum of 24 semester credits of work with grades of C or better in Government and in any related course which may be approved by the supervisor and the College Dean. Students will be required to complete Government 1 and 2, and, in addition, a minimum of 24 semester credits with grades of C or better. Not more than 9 credits earned as an Intern, in Social Science 81, may be counted toward the completion of the major requirements. Each student will be counselled individually and his program of study planned for his needs.

Students interested in electing *Government* as a major should consult the supervisor, Professor J. T. Holden, Room 204, Morrill Hall.

History

History, as a field in which to major, may be of interest to the following groups of students: (1) Those who wish to do college teaching in History. Graduate study is indispensable for such work, but preparation may be made for it by a certain amount of undergraduate specialization. (2) Those who plan to teach History in secondary schools. For such a position, training in other social studies is highly desirable, if not absolutely necessary. The student is therefore advised to keep in touch with the Department of Education as well as with the Department of History, with a view to satisfying teaching standards and building a well-rounded program of studies. (3) Those who intend to enter other professional fields in which a considerable amount of historical knowledge is desirable. Such a field, for example, might be that of library training in which an historical preparation would rank with study in literature as a background, or the increasingly important profession of Archivist. (4) Any students who feel free to plan the college program without too specific reference to a vocation, and who have a special interest in History.

Students who major in *History* are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They must also earn 24 semester credits in courses in History, with grades of C or better, exclusive of History 1, 2. The 24 semester credits with grades of C or better may be earned in elective courses, in required courses, or both. Philosophy 55, 56, *The Philosophy of History* is a required course for all History majors and may be counted for major credit.

Any department in the College of Liberal Arts may be considered a related department, except Bacteriology, Geology and Geography, and Zoology.

Students planning to major in *History* should consult the supervisor. Professor P. M. Marston, Room 204C, Demeritt Hall.

History and Literature

Students who desire a broad education may take a combined major in History and Literature. Students who plan to enter library service may also find here a desirable major. The program of this major offers an opportunity to study the history and literature together of Greece and Rome, of France, of Germany, or of Spain. A still broader survey of European history and literature is also possible. The program involves the completion of 24 semester credits with grades of C or better in one of the following groups of courses, of which 12 credits should be in History and 12 in Language:

(a) History 11, 12, 13, 14; Philosphy 55, 56
Latin 5-6; 53-54; 55-56

(b) History 9, 10; 19, 20; 63, 64; 83, 84
Spanish 5-6; 53-54; 55-56; 85-86

(c) History 14; 19, 20; 63, 64; 83, 84; 87, 88
French 5-6; 51-52; 53-54; 55-56

(d) History 14; 19, 20; 63, 64; 83, 84; 87, 88
German 5-6; 53-54; 55-56; 57-58

(e) 6 credits in either Languages 1, 2 or 51, 52
6 credits in French, German, Latin, or Spanish in courses numbered 5 or higher.
12 credits in courses in Groups A or B in the Department of History.

A student who has met the major requirements in History and Literature will receive the Degree of Bachelor of Arts with the notation "History and Literature" on the Commencement Program.

Students' registration cards may be signed by either Professor P. M. Marston, Chairman of the Department of History, Room 204C, Demeritt Hall, or Professor E. A. Boulay, Chairman of the Department of Languages, Room 119, Murkland Hall.

Students electing Group (b), (c), or (d) will be encouraged to do a considerable part of their reading for the courses in History, in Spanish, French, or German, respectively.

Home Economics

Students who are interested in clothing design and construction, interior decoration, home furnishings, child care, preparation for homemaking, or in obtaining a broad education particularly applicable to the needs of women, are advised to consider registration as majors in *Home Economics.* Such a program would not be as completely professional nor would it qualify the student so thoroughly as would one of the professional curriculums in the department of Home Economics in the College of Agriculture. A broad general program would serve as pre-professional for further training in child guidance, positions in the clothing and textile fields, salesmanship, interior decoration, and other similar lines. Students who wish to follow such programs should consult with the supervisor. Several elective courses are offered for, or are open to, students who do not wish to major in Home Economics.

While many interesting and worth-while opportunities are open to Home Economics majors, there are some fields which demand prescribed curriculums. Special programs are arranged to prepare hospital dietitians, institution administrators, teachers of Home Economics, and Extension workers. (See College of Agriculture.)

Majors in *Home Economics* are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They are expected also to complete 24 semester credits with grades of C or better in courses in Home Economics, exclusive of *Home Economics* 1, 2 and including *Home Economics* 3, 4; 15-16; 33 and (35). Related courses in other departments may be counted for major credit with the consent of the supervisor and the College Dean.

Students who are interested in a major in *Home Economics* should consult with the supervisor, Miss Frances Platts, Room 211, Pettee Hall.

Languages

A major student in the Department of Languages may have a professional or cultural objective. Many majors plan to enter secondary-school or college teaching. For such students there is no hard and fast curriculum. The arrangement of Language courses is sufficiently flexible to meet the individual's needs. As most language teachers are obliged to teach more than one language, or one language in combination with other subjects, students should not plan to concentrate in a single language and its literature, but to map out a program including two languages (preferably French and Latin), or one language with a number of courses in English or History. Students who may desire departmental recommendations for teaching a modern language should include *French* 13-14, *German* 13-14, or *Spanish* 13-14 in their major programs. Prospective teachers should consult the Chairman of the Department, Professor E. A. Boulay, and Professor T. O. Marshall of the Department of Education. Some departmental majors plan to enter library service. Most library schools require two foreign languages.

Major students who do not plan to teach usually have a cultural objective. Here again the flexibility of the departmental offerings makes it possible to arrange individual programs for individual students. Some students find a special appeal in a single foreign literature and wish to explore it thoroughly. Others find that the study of two or three languages and literatures is a broadening and stimulating experience.

For non-majors, the Department offers practical courses which are a valuable aid to careers in foreign service (consular, diplomatic, commercial, military, or naval), journalism (for international news, foreign books, and the like), interpreting, translating, travel agencies, radio announcing, etc. A knowledge of foreign languages is invaluable for the historian, the architect, the musician, the artist, the political and social scientist, and for any citizen who is interested in foreign affairs. The biologist, chemist, or physicist should always be able to read foreign articles and keep up with research in his field in foreign countries. As most graduate schools require a knowledge of one or two foreign languages, all students who may possibly do graduate work in any field should obtain a reading knowledge of French and German. The elementary courses in French, German, Italian, and Spanish are planned particularly to help students acquire an ability to read and to speak the respective language; at the same time, through reading and oral work, the student learns something of the history, institutions, customs, and spirit of a foreign country.

Latin is the basis of all language study and of the study of the Romance languages in particular.

For non-majors there are offered three courses which are given in English. These courses offer respectively a Survey of Greek and Latin Literature (in translations), a Survey of Modern European Literatures, (in translation), and an Introduction to Romance Philology.

Sophomores and Juniors may major in Languages; but not later than the period of registration for their Senior Year, students must designate *French, German, Latin, Romance Languages,* or *Spanish as their particular major.* Elementary courses (French 1-2, German 1-2, Greek 1-2, Italian 1-2, Latin 1-2, and Spanish 1-2) cannot be counted for major credit. A major in a single language (French, German, Latin, or Spanish) must comprise a minimum of 18 major credits in a particular language.[1] The remaining 6 credits may be earned in other designated courses in the Department. A major in *Romance Languages* must comprise courses in both French and Spanish (not including French 1-2 or Spanish 1-2) with a minimum of 12 major credits in each.[2]

The special supervisor for majors in *Languages* and in *Romance Language* is Professor Ernest A. Boulay; for majors in *French,* Professor Clifford S. Parker; for majors in *German,* Professor A. P. Danoff; for majors in *Latin,* Professor J. S. Walsh; for majors in *Spanish,* Professor J. Berzunza. All offices of the Department of Languages are in Murkland Hall.

Attention is called to the combined major in History and Literature.

Mathematics

Over and above the benefits to be derived from the study of Mathematics for its own interest, it is being recognized, ever more forcefully, that such study will give the student essential and invaluable equipment for any scientific pursuit. The courses in Mathematics are intended to provide a sound preparation in the fundamentals of the subject as well as to offer a sufficient variety of subject matter to meet diversified interests. Courses are designed to prepare the student, who majors in *Mathematics,* for opportunities in various fields. Among them are (1) work in statistics, such as government agencies, business, life insurance, and the application of statistics to problems in Education, Economics, Sociology, Psychology, Medicine, and Genetics; (2) teaching Mathematics in secondary schools; (3) graduate study for those students who are interested and especially proficient in their undergraduate work.

Students who are interested in a *Mathematics* major are advised to consult Professor D. B. Ames, Room 203, DeMeritt Hall. After the students' special interest is determined, the advice of an additional member of the Department may be sought where such counsel is felt to be needed.

Majors in *Mathematics* who intend to do secondary-school teaching, should also consult Professor T. O. Marshall of the Department of Education. Students interested in teaching Mathematics in college are advised to plan for graduate study.

Majors in *Mathematics* must meet in full the requirements of the General Liberal Arts Curriculum found on page 85. They must also complete 24 semester credits in Mathematics, with grades of C or better, including Mathematics 19. A major in Mathematics should take Mathematics 11 and 13 simultaneously. *(Mathematics 2, 9, 11, and 13, do not count for major credit.)*

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[1] The requirements for a major in a single language are effective for students entering the University after September 1, 1949.

[2] The requirements for a major in Romance Languages are effective for students entering the University after September 1, 1946.

Music

The Department of Music offers a major program in the General Liberal Arts Curriculum for students who desire to place an emphasis on Music while pursuing a broad, general program of study. The study of music history, literature, and appreciation gives the student cultural values which should enrich his entire life. Music study tends to increase understanding and appreciation of other fields, including the Fine Arts, Language, and Literature. The instruction offered in the Department of Music sponsors musicality (appreciation and general comprehension of music form), musicianship (musical astuteness and scholarship), ability to perform, and capacity to teach, supplemented by the general education required by the College of Liberal Arts.

Instrumental instruction and vocal instruction are given in private lessons. Class instruction provides for the pursuit of academic music studies. Student recitals, instrumental and vocal ensembles, Men's Glee Club, Women's Glee Cub, the University Concert Choir, the University Symphony Orchestra, and the University String Orchestra, and the University Concert Band and Marching Band afford both laboratory and concert experience.

Students who major in *Music* are expected to meet in full the requirements of the General Liberal Arts Curriculum, which are set forth on page 85. They must also earn grades of C or better in all courses of the music major.

The Department of Music offers the students three options in concentration. leading to the Bachelor of Arts Degree with a major in Music.

I. An option stressing music history. The following courses are required: Music 9-10; 11-12; 13-14; 15-16; 51-52, or 97-98; 43; 45, 46; 47-48; 80, 81, 82. 83; 8 credits in Applied Music 23, *Piano.* Recommended — Music 1, 2, 3W or 3M, 5, 7, 8, 41-42, 33, 34.

II. Applied music option which emphasizes training in voice, piano, organ, violin, woodwinds or brass. The following courses are required: Music 9-10; 11-12; 13-14; 15-16; 45, 46; 4 credits in advanced theory or literature courses; 16 credits in Applied Music in principal field; A senior recital. Recommended — Music 33, 34; 1, 2, 3W or 3M, 5, 7, 8, 97-98.

III. A theory option stressing musical composition. The following courses are required: Music 9-10; 11-12; 13-14; 15-16; 51-52; 71-72; 97-98; 45, 46; 4 credits in advanced history; 8 credits in Applied Music 23. *Piano.* Recommended — Music 1, 2, 3W or 3M, 5, 7, 8, 33, 34.

Prospective majors in *Music* are advised to consult with the supervisor, Professor Karl H. Bratton, Room 101, Ballard Hall.

Philosophy

This Department proceeds on the assumption that Philosophy, which has sometimes borne the reproach of being impractical, is in reality very practical and can make its contributions to actual living. It is interested in the diffusion of the philosophic spirit among all students as well as in developing specialists in Philosophy. It proceeds on the belief that Philosophy is (1) an attitude, (2) a method, and (3) a body of knowledge which may greatly aid in the development of wisdom.

Students in any of the following groups may find Philosophy of value. *(At present the Department does not offer opportunity for a major.)*

1. Those for whom the greatest intellectual need is to become at home in the whole world of thought through an inclusive investigation of nature and man. Such individuals, equally interested in both the social studies and the humanities, but without a preference for any as a specialty, might find in the breadth and depth of Philosophy the field of partial concentration of greatest value to them.

2. Those whose interest in Philosophy, or in social or humanistic studies, suggests the teaching of Philosophy as a vocation.

3. Those planning to attend theological schools or to specialize in religious education.

Physics

The major in *Physics* is intended to prepare students for a diversity of interests in the application of this fundamental science. Broad in scope, the program provides many electives so that a student may supplement his work in Physics by that in other fields such as mathematics and the allied sciences. The intermediate courses are purely theoretical in nature and are intended to give the student a thorough grounding in fundamentals in a particular branch of physics. Some of these courses are supplemented by appropriate laboratory work illustrating some of the basic principless. Opportunity is given in the Senior Year for a student to do some elemental investigation of his own choosing under guidance. Graduates of this major are eligible for employment in the various industrial, government and armed services laboratories or they may continue study in the academic field leading to more advanced degrees.

Students who major in *Physics* are expected to meet in full the requirements of the General Liberal Arts Curriculum which are described on page 85. They are required to complete 24 semester credits, with grades of C or to 24 semester credits with grades of C or better and *must elect Physics 21-22 as the introductory course in place of Physics 1-2.* Since proper preparation in mathematics is essential to a good understanding of Physics, the student must plan to elect in the Freshman Year, if possible, *Mathematics* 11, 13, 14, 16 in order to have the necessary prerequisites for *Physics* 21-22 and the courses that follow in both mathematics and physics.

Students who wish to major in *Physics* are advised to consult with the supervisor, Professor F. A. Scott, Room 103, DeMeritt Hall. After a student's major interest is determined, the advice and counsel of an additional member of the Department will be sought where a special area of concentration is contemplated by the student.

Psychology

Some students may wish to major in Psychology for the purposes of understanding themselves and others more adequately and of gaining knowledge of scientific methods of studying human behavior. Others may not have these aims in mind but also may wish to specialize in Psychology to prepare themselves for one of the following professional objectives: (1) college teaching; (2) personnel work in industry or government; (3) supervision of psychological testing in mental hospitals, juvenile courts, city school systems, child guidance clinics, and the Federal Civil Service; (4) counseling and guidance in secondary schools and colleges; (5) clinical practice.

Students who contemplate major work in Psychology as a means of preparing for a profession should keep in mind the necessity of graduate work. For non-majors, a background of Psychology will be an asset in teaching, nursing, social work, business and industrial management, or professions, such as medicine and law, in which human relations are of primary importance.

Students who major in *Psychology* are expected to meet in full the requirements of the General Liberal Arts Curriculum which are set forth on page 85. They are required to complete 24 semester credits, with grades of C or better, in courses in Psychology and in such related courses as may be approved by the supervisor and the College Dean. Psychology 98, *Seminar in Psychology*, is the only course required of all majors. Psychology 57, *Experimental Psychology*, and Psychology 67, *Statistics in Psychology*, should be taken by all psychology majors who are planning for graduate work. A comprehensive paper on a subject approved by the supervisor is required. This paper is the core project in Psychology 98. Students who wish to major in *Psychology* are advised to consult with Professor Herbert A. Carroll, Room 202, Conant Hall.

A graduate program of study is offered for those students who are interested in earning the Master of Arts Degree in Psychology. (See Catalogue issue of the Graduate School for further information.)

Sociology

The major in *Sociology* is for (1) students who desire a liberal education with emphasis on study of the organization and differentiation of contemporary society, particularly study of the research methods developed in recent years for a better understanding of social phenomena; (2) students who intend to do graduate work in Sociology; and (3) students who plan to attend a graduate school of social work but prefer a broader choice of undergraduate electives than the prescribed Social Service Curriculum permits.

The Social Service Curriculum, with its supervised field work and its concentration on professional and preprofessional courses, not only prepares students to enter graduate schools of social work but also has been quite successful, for a number of years, in preparing them for junior positions in social work prior to graduate study.

Students who wish to teach Sociology in secondary schools are advised that such teachers usually have to teach related social studies. Students with this vocational aim should consult with Professsor T. O. Marshall of the Department of Education.

Majors in *Sociology* are expected to meet all the requirements of the General Liberal Arts Curriculum (page 85). They are expected to take Sociology 1, *Principles of Sociology*, and Sociology 4, *Problems of Social Disorganization* during their Freshman or Sophomore Years. In addition, they must complete a minimum of 24 semester credits with grades of C or better in Sociology (or in any related course approved by the supervisor and the College Dean) including Sociology 92, *Senior Seminar* and either Sociology 75, *Methods of Social Research* or Sociology 84, *Methods of Social Progress. Sociology majors must also complete six semester credits of advanced work in one of the following fields: Economics, Government, Home Economics, History, Psychology* or *Zoology*. At the end of the Senior Year they must pass a written comprehensive examination for which Sociology 92 is designed to prepare them.

Students who are interested in choosing *Sociology* as a major should consult the supervisor, Professor Raymond E. Bassett, Room 204C, Demeritt Hall.

Zoology

Zoology is the science of animal life; the study of the structure, functions, development and classification of the various animal forms. The student may major in Zoology (1) because of a general educational interest in the subject; (2) because of his avocational interest in nature study; or (3) to prepare for professional work in pure science or in Applied Zoology. Fish and Game Management, important in the conservation of our natural resourses, is an example of Applied Zoology. Students who are interested in entering fields of Applied Zoology should plan to secure advanced degrees since positions in these fields are difficult to obtain without graduate study. Undergraduate preparation for students who are interested in Applied Zoology generally should parallel that of any students planning to enter graduate work in Zoology.

The University of New Hampshire's location on tidewater and near the open ocean provides an unusual opportunity for the study of Marine Zoology and Marine Ecology.

All students who major in Zoology are expected to meet in full the requirements of the General Liberal Arts Curriculum (see page 85) with grades of C or better in 24 semester credits in Zoology. Related courses in other departments may be counted for major credit with the consent of the supervisor and the College Dean. Minimum course requirements for Zoology majors include: Zoology 7; Zoology 8; Zoology 18; Botany 3 or 6; and eight credits in courses numbered from 51-100. *Zoology majors are also required to present credit for Chemistry 3-4 and a course in Organic Chemistry, (Chem. 45, 47-48, or Agr. Chem. 1.) These courses in Chemistry cannot be counted as part of the 24 major credits.*

Students who are interested in a *Zoology* major are advised to consult the supervisor, Professor W. L. Bullock, Room 107A, Nesmith Hall.

OTHER PROGRAMS OF STUDY

Although pursuing his studies in the College of Liberal Arts in one of the major fields just outlined, the student may also prepare himself for some related objectives which he may have in mind. Three of these are described below and there is enough freedom of election to make it possible for the student, in consultation with his supervisor, to arrange others.

Institutional Management

The student who wishes to work in the field of Institutional Management (the care and maintenance of any form of household from the individual family dwelling, to the hotel, hospital, sanitarium or other housing of the many) will find in this Catalogue under the offerings of the Department of Home Economics, Hotel Administration, and Economics and Business Administration a variety of courses fitted to his needs. Such students should consult for further information on this subject Professor Helen F. McLaughlin, Room 209, Pettee Hall, or Professor Raymond R. Starke, Room 105, Conant Hall.

Pre-Dental

Pre-dental preparation parallels very closely the Pre-medical curriculum although students may elect almost any one of the General Liberal Arts Majors. The student's program should include courses in Comparative Anatomy, Physics, and Organic Chemistry. Students who plan to enter dental school, either before or after achieving the Bachelor of Arts degree, are advised to consult with Professor W. L. Bullock, Room 107A, Nesmith Hall.

Pre-Law

While the bar association and law schools do not prescribe a specific undergraduate curriculum for future lawyers, they recommend that a student who contemplates entering law school should plan a study program which will develop breadth of view and facility of expression. They also urge him to acquire a background of information concerning the society in which he lives and the forces which have shaped modern institutions.

The courses considered most helpful are those developing oral and written expression; dealing with man's social, economic, and political institutions; providing an understanding of the human mind; and developing the art of thinking. Finally, since the case method of study is used in law schools, courses devoted to the intensive study of the subject matter are considered helpful as an introduction to the materials and the discipline which the student will experience in law school.

Students who plan to enter law school after graduation are advised to counsel with Professor J. T. Holden, Room 204, Morrill Hall, as soon as they have made their decision.

PRESCRIBED CURRICULUMS

Several prescribed programs of study intended to provide training for business or professional life are available to students in the College of Liberal Arts. They are arranged in such manner as to permit considerable specialization while conserving the breadth and general culture of the students enrolled in them. They are less broad and general, however, than the *General Liberal Arts Curriculum.* They are definitely professional in character. All Prescribed Curriculums lead to the Degree of Bachelor of Science.

Business Curriculum

One curriculum with an option is offered in this field: (1) a curriculum for students who do not desire to specialize in any particular phase of business; (2) an option for those desiring to specialize in accounting. The Business Curriculum provides for general education as well as professional preparation in business subjects. For students who wish to specialize in marketing and distribution, in finance, or in labor and personnel administration, an expanding list of courses in these areas is offered. Students may choose electives from these groups. Many of the graduates of the Business Curriculum are successfully filling responsible positions with accounting, banking, insurance, merchandising, and manufacturing concerns.

The Business Curriculum is planned to emphasize foundation or general courses in the Freshman and Sophomore Years with specialization coming largely in the Junior and Senior Years. The program is outlined on pp. 89-90. Students registered for this Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 87. Students pursuing the *Business Curriculum* must obtain grades of C or better in 24 semester credits from the following courses: Business Administration 1-2, 21-22, 23, 34. Economics 1-2, 3, 25, 31, 51, 53, 56, English 35. Of the required courses in Economics and Business Administration, at least 12 semester credits shall be earned at the University of New Hampshire.

Students pursuing the *Accounting option* must obtain grades of C or better in 24 semester credits from the following courses: Business Administration 1-2, 3-4, 7-8, 21-22, 23, 25, 55, 56, 57, 59, 68, Economics 1-2, 3, 31, 53, 56, English 35. Of the required courses in Economics and Business Administration at least 12 semester credits shall be earned at the University of New Hampshire, at least six of these semester credits shall be in accounting courses.

Students interested in a program in the Department of Economics and Business Administration should consult the Chairman of the Department, Professor J. A. Hogan, Room 212, Morrill Hall. Students who choose to follow the *Business Curriculum* will be assigned to Professor A. W. Johnson or some other member of the Department who will act as the supervisor for the duration of the course.

Hotel Administration Curriculum

Young men and women to whom a cereer in hotel work makes an appeal are invited to follow this Curriculum. Hotel work is no sinecure; hard labor and long hours are the inevitable condition of final success. The details of the Curriculum will make these facts evident.

To do well in hotel work requires on the part of the student real effort, and the eventual acquisition of wide knowledge in an extensive range of subject matter. On the other hand, there are many positions open to hotel graduates; the hotel industry is an expanding one, and the opportunities for proprietorship depend chiefly on the ability and initiative of the individual.

The Curriculum is designed to give the student the well-rounded education demanded of the hotel executive, and is not confined strictly to professional work. The program includes, besides professional subjects, cultural courses in the Humanities and the Sciences, both physical and social.

The basic work comprises four main divisions: Foods, Engineering, Accounting, and Hotel Management Problems. About three-fourths of the total Curriculum is prescribed by the requirements of the Department in these four groups, together with the University and College requirements, leaving about one-fourth of the time open for electives in allied subjects or others of the student's choice.

To make certain that the hotel education program contains some experience under working conditions, *each student is required to secure before graduation a minimum of 20 points of hotel practice credit in addition to the scholastic requirements of the Curriculum. This will be gained through work in hotels where supervision will be authorized, regular reports submitted by the student, and the grade of work reported by the employer. Each week of work will constitute one point. Not more than 12 points may be secured for any one type of work performed, nor more than 20 points from a given hotel.*

The program is outlined in detail on page 91. Students registered in the Curriculum are held for the requirements, expected of students in all Prescribed Curriculums which are set forth on page 87.

Students interested in *Hotel Administration* are advised to consult the supervisor, Professor R. R. Starke, Room 105, Conant Hall.

Medical Technology Curriculum

There is now a large and increasing demand for Medical Technologists. Public health and medicine depend more and more upon the laboratory, and professional technicians are needed to perform various laboratory techniques and tests such as blood typing, blood counts, tissue sections, urinalyses, and bactoriological and serological tests. Positions in this field are available in hospital laboratories, physicians' and surgeons' clinics, and in health department laboratories.

Students who are interested in becoming Medical Technologists should register in the prescribed curriculum in *Medical Technology.* The program has been so arranged that the student will start a 12-month laboratory training period in an approved hospital school of medical technology at the beginning of the second semester of the Senior Yar. After successfully completing this hospital program, the student is awarded 16 credits towards the Bachelor of Science Degree and is also qualified for the examination for the Medical Technologist's crtificate in a period of 4½ years. Students who complete this program are well qualified for work in any hospital or medical laboratory. (See page 92).

Students in the Medical Technology Curriculum must obtain grades of C or better in 24 semester credits from the following courses: Zoology 17, 18; Bacteriology 1, 8, 53; Chemistry 25, 45; and Agricultural Chemistry 56.

Students who in their Junior or Senior Years decide not to complete the hospital laboratory course (Biology 62) will find it possible to transfer to a major in the General Liberal Arts Curriculum. For example, they will have satisfied all the requirements for a Bacteriology major except the special language requirement. The requirement may be met by passing a reading test based on two years of a language taken in high school or one year of college language.

Students interested in the prescribed curriculum in *Medical Technology* are advised to consult with the supervisor Professor L. W. Slanetz, Room 215, Nesmith Hall.

Nursing Curriculum

Any woman student who is interested in nursing as a career is encouraged to consider the Nursing Curriculum. It affords opportunity for examinations for registration as a nurse and enables the matriculant also to secure a college degree. The breadth of training beyond that usually received in a hospital training school is increasingly in demand, particularly for those who aspire to executive or supervisory positions. The Curriculum prepares for nursing and also permits the student some specialization in other fields related to nursing. (See page 93).

The student must satisfactorily complete three years of work in residence at the University of New Hampshire, and graduate from a school of nursing approved by the University. The length of the training period will vary with the several schools of nursing.

A student registered in the Curriculum is held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 87. *This Curriculum is intended to precede hospital training.*

Students interested in selecting the *Nursing Curriculum* are advised to consult with the supervisor, Professor E. T. Richardson, Room 104, Nesmith Hall.

Occupational Therapy Curriculum

An ally to the medical profession, Occupational Therapy is any activity, mental or physical, prescribed by a physician, and administered by a registered therapist, to aid in the recovery or the rehabilitation of the patient.

Its early adaption, long before World War I, grew from the knowledge that occupation is nature's best medicine. From its use in the first World War as a morale agent, it has expanded to the point of recognition by the American Medical Association as an important treatment in all types of illnesses.

The course admits both men and women who can meet entrance requirements.

The successful practice of Occupational Therapy requires not only thorough academic preparation but also suitable personality combined with judgment, dependability, tact, tolerance, patience, and will to serve. A high degree of mental and physical health is essential. Occupational Therapy requires physical vitality and emotional stability.

Before the beginning of the Sophomore Year, in the case of students who are interested in the Occupational Therapy curriculum, (or before admission into this Curriculum in the case of students who transfer from other majors or from other colleges,) a series of tests will be given to assist the supervisor in advising the student of his or her fitness for continuing in or entering this Curriculum. (See page 94).

Because of the highly specialized nature of the Occupational Therapy Curriculum, students are advised to enter into this program not later than at the beginning of their Sophomore Year; otherwise, they should expect to spend additional time in working toward the Bachelor of Science degree.

The Curriculum in Occupational Therapy is designed to satisfy the requirements of the American Medical Association as well as to offer a four-year course leading to the Bachelor of Science Degree. This includes the theoretical subjects needed in the medical field as well as a wide range of crafts and skills used in therapy and recreational, educational, and pre-professional subjects.

At the completion of the requirements of the Curriculum, the student will spend ten months in clinical training in affiliated hospitals or services under the direction of a registered Occupational Therapist. *When this internship is satisfactorily completed, the student is entitled to a Certificate of Occupational Therapy.* The student is then qualified to take examination for registry in the American Occupational Therapy Association. The standard examination is sent out by the Association and administered by the University. A fee of $10 is required by the Association for each examination. While the present demand for qualified therapists is far in excess of the supply, there are relatively few job opportunities for those who have not completed the requirements for and entered the Registry of the American Occupational Therapy Association.

A clinical training fee of $60 for residents of New Hampshire and $135 for non-residents of the State will be payable to the University by those students who enter clinical training after Commencement Day in 1951.

Ten months of clinical training in affiliated hospitals is divided as follows:

Psychiatric conditions — three months
Physical disabilities (surgical, neuromuscular and orthopedic) — two months
Tuberculosis — two months
Pediatrics — one month
General medicine and surgery — one month
One month of additional work in one of the above fields as arranged by the student and the supervisor.

The American Medical Association requires a physical examination including a tuberculin test prior to hospital training.

Expenses vary during the period of clinical training. Room, board, and laundry are given students by some hospitals; meals only in other hospitals;

while others offer training only. *In all cases, the University must approve living arrangements for student affiliates.* Students will furnish regulation uniforms which are required for clinical training.

The present demand for qualified therapists is far in excess of the supply.

Students who are interested in this Curriculum are held for the requirements expected of students in all Prescribed Curriculums which are set forth on page 87 and in addition must obtain grades of C or better in the following courses: Zoology 17, 18, 19, 64. O. T. 46, 47, 48, 49-50. They are advised to consult with the supervisor Miss Esther Drew, Room 207, Hewitt Hall.

Pre-Medical Curriculum

Young men and women who are interested in careers as physicians or surgeons may select the Pre-Medical Curriculum. Students who successfully complete this Curriculum will be eligible for admission to class A medical schools. However, owing to the large number of applicants for admission to medical schools, usually only those students who stand in the upper third of their class can expect to be admitted.

It is highly desirable that a pre-medical student secure a Bachelor's Degree, although some medical schools do not require it as a condition of admission. The four years of pre-medical work will not only give the student a foundation for his future medical training, but will also give him an opportunity to secure the broad general education he needs. Medical schools recognize this need for general education and recommend that pre-medical students secure only basic sciences and devote the rest of their time to non-science areas.

The Curriculum is outlined in detail on page 95. Students registered in it are held for the general requirements of Prescribed Curriculums (see page 87). *Students pursuing the Pre-Medical Curriculum must obtain a grade point average of 2.5 or better for the required courses in Biology, Chemistry, Physics, and Zoology.*

Students who are interested in this Curriculum should consult the supervisor, Professor George M. Moore, Room 101, Nesmith Hall.

Secretarial Curriculum

A large number of college women find pleasant and profitable employment in secretarial positions in private, professional, commercial, and industrial offices. Although in most cases the initial appointment is to a subordinate position in an office organization, the breadth of the college education plus the secretarial skills acquired during the college course give opportunity for early assumption of greater responsibilty.

Although the Curriculum is essentially semi-professional, it provides for a rather liberal number of electives with which to secure the general education so essential to success.

Women students who are interested in other aspects of business are advised to consider the Business Curriculum and those interested in less specialization are counselled to consider a major in Economics in the General Liberal Arts Curriculum.

Women who are preparing to teach commercial subjects in high school should consult the description of the commercial teacher preparation program which appears on page 80.

The Secretarial Curriculum is outlined in detail on page 96. Students registered in it are held for the general requirements expected of students in all prescribed curriculums as set forth on page 87. Secretarial students must earn grades of C or better in the following courses: Sec. St. 3-4, 9-10, 17; Sec

St. 11, 13, 18 (unless excused in accordance with the statement below); Sec. St. 22, *Advanced Transcription*, Sec. St. 23-24, *Business Writing*, Economics 3, *Economic and Commercial Development of the U. S.*, B. Ad. 1-2 *Elementary Accounting*, B. Ad. 21-22, *Commercial Law*, or B. Ad. 24, *Introduction to Business*, 4-11 credits (a total of 24 semester credits).

Students transferring from collegiate institutions and high-school students with previous training in Secretarial subjects are required to take the following courses: Sec. St. 3-4, 9-10, 17; Sec. St. 11, 13, 18 (unless excused). These students may be excused from:

Sec. St. 11 by passing a 40-period certificate test.

Sec. St. 13 by passing a theory and practice test on each of the machines taught.

Sec. St. 18 by giving satisfactory evidence of having done acceptable secretarial work in a business office for one year. (*Work done for relatives will not be considered*).

Transfers and high-school students who have had one year of Gregg shorthand (or the equivalent of one year) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 1 for credit; likewise, those students who have had one year of typewriting (or the equivalent) in another institution and have earned a grade of 80 or better (where the passing grade is 70) will not be allowed to enroll in Sec. St. 7 for credit.

Secretarial students who have had Sec. St. 5 in the University of New Hampshire or a similar course in another collegiate institution, or one semester ot typewriting in high school or preparatory school will be required to enter Sec. St. 27 instead of Sec. St. 7.

Students who are interested in a program in the Department of Economics and Business Administration should consult the Chairman of the Department, Professor J. A. Hogan, Room 212, Morrill Hall. Students who choose to follow the *Secretarial Curriculum* will be assigned to Professor Doris E. Tyrrell who will act as the supervisor for the duration of the course.

Social Service Curriculum

Social Service includes, among others, the following fields: family case work, child care, child placement, settlement and neighborhood house, institutional work for defectives and dependents, municipal and county relief work, probation, correctional school and prison service, Y.M.C.A. and Y.W.C.A. secretarial service, municipal playground direction, child guidance clinics, community chest work, rural community organization.

For full recognition in most of the fields of Social Service, it is becoming increasingly important for a man or woman to have completed the two-year professional course in a graduate school of social work. The best preparation for admission to such a graduate school is either (1) a broad liberal arts education with 40 to 60 hours of credit in the social sciences, including a major in Sociology, or (2) the Social Service Curriculum. For able students, scholarship aid toward meeting expenses of graduate study is sometimes available.

There is a continuing serious shortage of qualified workers in nearly all the branches of social work. For this reason, a number of students who complete the Social Service Curriculum find employment each year, in public welfare, group work, etc., before they commit themselves to graduate study. The Social Service Curriculum is almost unique among undergraduate preprofessional offerings of its kind in the opportunities it provides for field work. And so its graduates, who have entered employment directly after graduation, have an exceptionally fine record of success.

The program is outlined in detail on page 97. Students registered in it are held for the general requirements expected of students in all prescribed curriculums which are set forth on page 87.

It should be noted that while the field work requirements of Sociology 97, 98, may be completed during the college year in connection with a neighboring social agency (see course description) it is strongly recommended that, where possible, students arrange to satisfy the requirement by spending the summer preceding the Senior Year in practical work under the supervision of a settlement, correctional institution, or case work agency in Boston, or some other urban center.

Students interested are advised to consult the supervisor, Professor R. E. Bassett, Room 204G, DeMeritt Hall.

PREPARATION FOR TEACHING

University Teacher Preparation Curriculums

The University of New Hampshire has accepted the responsibility of preparing teachers for the secondary schools of New Hampshire and neighboring states. Two types of teacher preparation programs are offered. General Liberal Arts Curriculum students may follow an advisory program of studies called the university teacher preparation program. There are also *Prescribed Curriculums* preparing teachers in the fields of Agriculture, Art, Home Economics, Music, and Physical Education. (See following pages.) Students interested in preparing for teaching are urged to become thoroughly familiar with the requirements of all the Teacher Preparation Programs before they make a choice of a particular program. *This section of the Catalogue includes descriptions of Teacher Preparation Programs offered by the University, not merely those offered by Departments in the College of Liberal Arts.*

Courses in Problems in the Teaching of High-School Subjects

The courses in problems in the teaching of high-school subjects are listed on page 145 and are open only to students who have completed the course in *Principles and Problems of Teaching in the Secondary Schools* (Education 61) in addition to the courses in the subject and related subjects designated as prerequisites.* From these courses in Problems in the Teaching of High-School Subjects the student who plans to complete the university teacher preparation curriculum selects his course in the fields of his teaching major. *To be eligible for Supervised Teaching in a subject the student must complete the course in the problems of teaching that subject with a grade of at least C.*

Courses in Supervised Teaching. The work in Supervised Teaching is under the direction of the Co-ordinator of Student Teaching. Students teach under the immediate direction of selected classroom teachers in high schools approved by the University.

In the Supervised Teaching Courses the student participates in the conduct of class exercises and in the control of the classroom, at first chiefly as an observer, but gradually entering into teacher responsibilities until complete charge of the classroom is assumed.

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*Except for Agr.-Ed. 92, H. Ec.-Ed. 91 and P.E.-Ed. 91.

This work is required in the university teacher preparation program, but will be open only to students whose applications are approved by the Chairman of the Department of Education and the Co-ordinator of Student Teaching in the subject or subjects in which the applicant desires to do supervised teaching. *Applications should be filed in the Office of the Department of Education on or before November 15 of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least C the following courses in Education 41, 42, 52, 61 and, with an average grade of C or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.*

The applicant must also complete with a grade of at least C a course in the problems of teaching the subject in which he desires to do supervised teaching.

Prescribed Curriculums in Teacher Preparation

Agriculture Teacher Preparation Curriculum. A student electing the Teacher Preparation Curriculum in Agriculture must meet the general and specific requirements for a degree described on pages 32 and 33 and applicable to all students registered in the College of Agriculture. His course of study will follow a broad general program rather than a specialization in any particular field. Furthermore, he must meet the State Requirements for Certification which include one semester of practice teaching, 8 additional credits of courses in Education, and 8 credits of Agricultural Engineering.

There is a rapidly increasing demand for teachers of Agriculture in our secondary schools. Local school boards are beginning to appreciate more fully the value of instruction in Agriculture, both for the boys who will engage in agriculture after leaving high school, and as electives to maintain the interest of those young men who may wish to take at the University further education in this basic industry. As a result, there are a good many positions open for the young men who wish to make the teaching of Agriculture a profession.

For the suggested program for the Sophomore, Junior and Senior Years, see page 50.

Art Education Curriculum. This curriculum is designed to prepare teachers and supervisors of art in the public schools. It is based upon the new demands for teachers who possess developed skills in the arts and a broad general culture in addition to a specialized preparation in Art Education. The satisfactory completion of this curriculum will satisfy the initial certification requirements for teachers of art in the public schools in New Hampshire and in other states maintaining certification requirements.

Freshmen who plan to enter this Curriculum should elect *Elementary Drawing and Design* (Arts 23-24) in their first-year program.

A grade of C or better must be achieved in all Arts courses required in the curriculum.

Students who wish to prepare themselves to teach other subjects in addition to Art can do so by using their elective hours for this purpose. Such a program should be worked out in consultation with Professor T. O. Marshall, of the Department of Education.

Students registered in the Curriculum (see page 98) are held for the general requirements expected of students in all Prescribed Curriculums which are set forth on page 87.

Interested students should consult the supervisor, Professor George R. Thomas, Room 209, Hewitt Hall.

COMMERCIAL TEACHER PREPARATION PROGRAM. *This program is an option in the Prescribed Secretarial Curriculum and is not a prescribed curriculum in itself.*

Students preparing to teach commercial subjects in high school should include in their Freshman programs Sec. St. 7-8 and electives from Group III: in their Sophomore programs Sec. St. 1-2, Business Administration 1-2, and 24, Economics 3, Education 41, 42 and an elective from Group I; in their Junior programs, Sec. St. 3-4. 9-10, 13, and 23-24 Business Administration 21-22 and Education 52, and 61; in the Summer Session between their Junior and Senior Years Education-Commercial subjects 93, *Recent Problems in the Teaching of Commercial Subjects in the High School*; and in their Senior programs, Sec. St. 11, 17, and 18, and Education-Commercial Subjects 94, *Supervised Teaching in Commercial Subjects.* Such students should enroll for 18 semester credits in at least three semesters in order to have the second semester of the Senior Year free for supervised teaching.

Interested students should consult Professor Doris Tyrrell, Room 4, Morrill Hall.

HOME ECONOMICS TEACHER PREPARATION CURRICULUM. The Home Economics Teacher Preparation Curriculum for secondary-school teaching and extension work, presented on pages 50-51, aims to give adequate preparation to prospective teachers in the subject matter of the several phases of the field of Home Economics; to acquaint them with education procedures and modern methods of teaching, as well as to give a general education. The program is professional in character.

The Teacher Preparation Curriculum provides for courses in general as well as special methods. Students spend the first part of the second semester of the Senior Year in Supervised Teaching in approved high schools. The last three to four weeks of the semester are spent on the Campus in an intensive seminar where deficiencies revealed during the practice teaching period may be translated into assets. Graduate study is necessary for students who plan to be teachers of Home Economics in colleges and universities.

Women students who are interested in entering extension work, either as home demonstration agents or as boys' and girls' club agents in the 4-H Club program, are advised to follow the Teacher Preparation Program. An opportunity is offered to such students to obtain some practical experience in extension work through Home Economics 48, *Field Work in Institutional Practice and Extension*, during the summer between the Junior and Senior Years. A limited number of opportunities to do practice extension work during the latter part of the Senior Year are available to women students who have shown special aptitude in previous field experience in extension work.

The Curriculum is outlined in detail on pages 50-51.

Students who are interested should consult the supervisor, Professor Helen F. McLaughlin, Room 209, Pettee Hall.

MUSIC EDUCATION CURRICULUM. This Curriculum is designed to prepare teachers of music for the public schools. It is based on the new demands for teachers possessing sound musicianship and a broad general culture in addition to a specialized preparation in Music Education. The satisfactory completion of this Curriculum will satisfy the initial certificate requirements for teachers of music in the public schools in New Hampshire and in most other states.

To be admitted to this Curriculum the student must give evidence of having a sound musical background. *Freshmen who plan to enter this Curriculum must elect Music 9-10 and four hours of Applied Music in their first-year programs.*

A grade of C or better must be achieved in all Music courses required in the Curriculum.

Public-school music teachers must maintain a satisfactory standing musically with other professional musicians in the community and should be able to play or sing acceptably. For this reason *16 semester credits in Applied Music are required before graduation:* 8 semester credits in one field and 8 semester credits divided among other fields of Applied Music. In addition, all candidates must pass an examination in piano and voice which will demonstrate ability to perform acceptably:

Piano

1. Four-octave major and minor scales.
2. Four of the two and three part Bach Inventions or their equivalent in difficulty to be drawn from the classic repertoire.
3. Play from memory any piece of moderate difficulty.

Voice

1. Sing from memory two songs of moderate difficulty.
2. Sing from sight a simple song creditably.

Recitals

Students enrolled in the Music-Education Curriculum must accumulate a minimum of 24 points in the Sophomore, Junior, and Senior Years. Attendance at each concert or recital constitutes one point.

All Mus.-Ed. candidates must take a voice and piano audition at the end of the Junior Year, and an oral comprehensive examination covering all fields of music preparation before entering upon practice teaching.

The Curriculum is outlined in detail on page 99.

Students who are interested should consult the supervisor, Mr. J. L. Davis, Room 204, Ballard Hall.

The Physical Education Teacher Preparation Curriculum for Men. For men students who plan to prepare themselves for positions as teachers of Physical Education or Directors of Physical Education, the University has organized the Physical Education Teacher Preparation Curriculum for Men (see page 101). This Curriculum will enable men to prepare themselves to teach in two subject-matter fields as well as in Physical Education. *It is open to men who have satisfactorily completed the Freshman Year, and are approved by the Department of Physical Education for admission to Physical Education as a field of concentration.*

This Curriculum requires the satisfactory completion of a second teaching major of 24 semester credits and a teaching minor of 12 semester credits in subjects taught in high schools. Students who are interested in this program should consult with Professor Carl Lundholm, Room 5A, Field House.

The Physical Education Teacher Preparation Curriculum for Women. For women students who plan to prepare themselves for positions as teachers of Physical Education or for positions in Recreation, the University has organized the Physical Education Teacher Preparation Curriculum for Women. (See page 103). This Curriculum will enable women to elect at the end of the Sophomore Year, the *Physical Education Option* or the *Recreation Option.* Furthermore, students have the opportunity, if they so desire, to prepare themselves to teach in a subject-matter field as well as in Physical Education. Finally, those interested in going into *Physical Therapy* after leaving the University, may, by petition, make approved substitutions in the program. *The Curriculum is open to women who have satisfactorily completed the Freshman Year and are approved by the Department of Physical Education for Women for admission to that field of concentration.* It provides an opportunity to teach Physical Education under supervision in near-by schools and recreation centers.

Students in this curriculum who are planning to teach in areas in addition to Physical Education are required to complete with an average grade of C or better a second teaching major of 18 semester credits in subjects taught in high schools.

For students choosing the *Physical Education Option*, the following courses offered by other departments are suggested as valuable electives: English 35, *Public Speaking;* Psychology 51, *Psychology of Childhood;* Psychology 47, *Mental Hygiene;* Music 33-34, *Appreciation of Music;* Sociology 1, 4, *Principles of Sociology* and *Problems of Social Disorganization;* Sociology 39, *Rural Sociology;* Sociology 43, *Community Organization;* Physical Education 24, *Organized Camping* is also recommended. Students in this curriculum are advised to choose non-professional electives whenever possible. Those planning to enter graduate study should elect a foreign language.

Students choosing the *Recreation Option* are advised to become skilled in at least two of these four fields: art, drama, music, or physical education. The following courses offered by other departments are suggested as valuable electives for recreation specialists: Arts; Botany 6, *Systematic Botany;* Music; English 35, *Public Speaking;* Forestry 37, *Forest Recreation;* Government 1 or 2; Home Economics 83, *Home & Family Life;* Philosophy 4, *Ethics;* Psychology 1, *General Psychology;* Psychology 47, *Mental Hygiene;* Sociology 33, *Cultural Anthropology and Ethnology.*

Recreation students interested in Forestry Recreation are advised to take Forestry 36, *Special Problems* (Woodcraft and Nature Study) and Forestry 37, *Forest Recreation.*

To make certain that the Recreation Option contains some experience under working conditions, *each student is required to secure before graduation a minimum of 8 points of community recreation or camping credit in addition to the scholastic requirements of the Curriculum. This will be gained through work in hotels, playgrounds, community centers or camps where supervision will be authorized, regular reports submitted by the student, and the grade of work reported by the employer. Each week of work will constitute one point.*

Under Physical Education 1, 11, 2, 12, 3, 4, 5, 6, Physical Education students are required to include certain activities in the section reserved for students in the P.E.T.P. Curriculum. *During the Freshman* (or Sophomore) Year, the student must register for one quarter each of the following in the order listed: hockey, tennis, basketball, skating, skiing, badminton, softball and archery; *in the Sophomore Year,* hockey, elective, volleyball, tennis (int.); *in the Junior Year,* modern dance (elem.), modern dance (int.), stunts and tumbling, and golf. *Students in the Recreation Option must take Individuals.* For those who are quite highly skilled in the activities mentioned, substitutions may be made with the approval of the supervisor. Further dance and other activities not listed are included in courses for students in the prescribed Curriculum.

Students who are following any Teacher Preparation Curriculum in the University are urged to include for Physical Education, American country dancing, folk dancing, community games, hockey, basketball, and softball.

For information concerning this Curriculum see Professor Marion Beckwith, 101A, New Hampshire Hall.

GUIDANCE OF STUDENTS PREPARING TO TEACH. Students who come to the University of New Hampshire for the purpose of preparing themselves for the teaching profession should consult with the Chairman of the Department of Education early in their Freshman Year. Other students who are seriously considering teaching as a possible profession are urged to consult with the Chairman of the Department of Education before making a decision.

While the University has organized curriculums designed to prepare students for the profession of teaching, it also recognizes that it is important that students be prepared to meet the teacher certification requirements of the states in which they may desire to teach. The Department of Education endeavors to keep its files of teacher certification requirements up to date. Students preparing to teach in states other than New Hampshire should, before the close the Sophomore Year, consult the Department of Education concerning the requirements of the states in which they desire to teach and the most effective ways of meeting those requirements.

This program is sufficiently flexible to provide the differentiation necessary to meet the needs of students who may be planning to teach: (1) English and the Foreign Languages, (2) English and the Social Studies, (3) Mathematics and the Biological or Physical Sciences, or (4) the Commercial Subjects.*

A PLAN FOR INDEPENDENT STUDY

In order to stimulate the superior student and to develop his initiative, the Faculty of the College has approved a plan for independent study, which will permit Seniors who have demonstrated superior ability to take a special program replacing in part courses usually taken in the Senior Year. Independent study enables a student *to pursue intensive work in a limited field of study or to integrate the subject matter of two or more fields.*

(1) A Senior in the College of Liberal Arts may register for not less than 6 nor more than a total of 12 semester credits of *Independent Study* for the year, provided: (a) his cumulative academic average at the end of his Junior Year is 3.0 or better, and (b) he has submitted a plan for Independent Study that has been approved by his Supervisor and the Dean.

(2) *This student shall be called a College Scholar.*

(3) A College Scholar who registers for Independent Study may not carry more than 18 semester credits per semester and is not relieved of any University, College, or Prescribed Curriculum requirements. Independent Study credits may at the discretion of the Supervisor be submitted in whole or in part for major course requirements in the

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*The requirements of the State of New Hampshire are 21 semester credits in education courses, including 6 semester credits in supervised student teaching, and 18 semester credits in one or more fields usually taught in secondary schools. For detailed information concerning requirements, consult the Department of Education.

General Liberal Arts Curriculum or for elective credits in a Prescribed Curriculum.

(4) A College Scholar who has registered for Independent Study will be assigned for guidance to a member of the staff of his major department or Prescribed Curriculum.

(5) A College Scholar pursuing Independent Study may either (a) work upon a project involving individual work, such as a long essay, a series of experiments, gathering and interpretation of data, creative writing, etc., or (b) prepare for a special comprehensive examination. *(Such special comprehensive examination or paper may not be substituted for a required departmental comprehensive examination or paper.)*

(6) The result of a College Scholar's activity under the program of Independent Study will be judged by three members of the Faculty, appointed by his Supervisor from the staff of his department or curriculum or from related departments or curriculums or from both.

REQUIREMENTS FOR DEGREES IN THE COLLEGE OF LIBERAL ARTS

The Degree of *Bachelor of Science* is conferred upon those students in the College of Liberal Arts who successfully complete the requirements of a Prescribed Curriculum. The Degree of *Bachelor of Arts* is conferred upon all students in the College of Liberal Arts who successfully complete the requirements of the General Liberal Arts Curriculum.

A student's candidacy for a degree will be determined by his satisfaction of the university, college, major, or curriculum requirements in force at the time of his admission to the college either as a beginning student or a transfer. A student may petition to satisfy the university, college, major or curriculum requirements that may be in force at any time during his residence. *Such a* student shall be held, however, for *all* the academic requirements of the Catalogue under which he seeks a degree; not a portion thereof. *The new Catalogue becomes effective on July 1 of each year.*

Each candidate for a degree in the College of Liberal Arts must complete successfully 128 semester credits, and achieve a 1.8 *grade point average* in all courses completed in the University. In addition, he must complete the requirements given below and those of the major field, or prescribed curriculum, as stated in the preceding pages.

A. *General University Requirements*

Physical Education for Men	Freshman and Sophomore Years
Physical Education for Women	Freshman, Sophomore, and Junior Years
Military and Air Science for Men	Freshman and Sophomore Years

B. *General College Requirements*

1. Special Freshman Requirements
   *a. English 1-2. *Freshman English*
   *b. A biological science (Biology 1-2) or a physical science (Chemistry 1-2, †3-4; Geology 1-2; Mathematics 2, 13; 11, 13; **Physics 1-2)
2. Special History Requirement (to be taken in the Freshman Year unless the curriculum lists it in the Sophomore Year)
   *History 1, 2, *Introduction to Contemporary Civilization*
4. All Freshmen in the College of Liberal Arts are assigned on registration to advisers who counsel them until they have officially selected major departments or prescribed curriculums.
5. Students in both the General Liberal Arts Curriculum and Prescribed Curriculums are advised against over-specialization. Although no attempt is made to limit by regulation the number of courses in a major or the professional courses in a Prescribed Curriculum, more than 36 semester credits in courses in the major department, or more than 66 semester credits in professional courses in a Prescribed Curriculum, are deemed to constitute excessive concentration. Supervisors will counsel students who seem to be concentrating to their detriment to elect courses more likely to contribute to the breadth of their education. The Dean of the College will consult with the supervisors with regard to over-specilization as it may appear in the programs of individual students.

C. *Requirements for a Degree in the* GENERAL LIBERAL ARTS CURRICULUM·

Each candidate for a degree in the *General Liberal Arts Curriculum* must satisfy (1) the General University Requirements, (2) the General College Requirements as stated above, and (3) in addition must complete the requirements listed below and those of the major as described in preceding pages.

1. Special Language Requirement
   All students pursuing the General Liberal Arts Curriculum are required to pass a reading test in Classical Greek, French, German, Italian, Latin, or Spanish before graduation. This test*** will be based on two years of secondary-school language training. Graduates of normal schools or teachers colleges who are pursuing the General Liberal Arts Curriculum to qualify for a degree in the

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*Not counted toward fulfillment of *Major* or *Group* requirements.

†Chemistry 3-4 is required for pre-medical students and all who intend to take advanced work in chemistry.

**Students who expect to major in physics should not register for Physics 1-2 but elect sufficient mathematics to be able to schedule Mathematics 17-18 and Physics 21-22 in the Sophomore Year.

***Reading tests will be given by the Department of Languages in September, during Orientation Week; in January, before the registration period; and as part of the final examination in French 2, German 2, Greek 2, Italian 2, Latin 2, and Spanish 2. *Tests may be taken by individual students at other times only in exceptional circumstances.*

field of elementary education are exempt from the language requirement.

2. Group Requirements

   A student whose major is included in Groups I, II, or III shall present for the satisfaction of that group requirement some course outside of his major field, one not offered in fulfillment of any other college requirement. *A student may not offer in fulfillment of the Group I requirement the elementary course in the language in which he satisfies the special language requirement.*

   I. A student must successfully complete a year's work (two sequential semesters) in this group.
      - a. Arts 31, 32
      - b. English 13, 14; 15, 16
      - c. Humanities 1-2
      - d. Languages
      - e. Music 33-34
      - f. Philosophy

   II. A student must successfully complete a year's work (two sequential semesters) in this group. (Students electing a biological science during their Freshman Year must elect a physical science during their Sophomore Year, or *vice versa*.)
      - a. Biological Science (Biology 1-2)
      - b. Physical Science (Chemistry 1-2, or 3-4; Geology 1-2; Mathematics 2, 13; or 11, 13; Physics 1-2; or 21-22)

   III. A student must successfully complete at least 6 semester credits of course work in this group.
      - a. Economics
      - c. Psychology
      - b. Government
      - d. Sociology

3. Divisional Requirements

   The student must meet such divisional requirements as may be established in the division in which he is majoring.

4. Major Requirements

   Each student pursuing the *General Liberal Arts Curriculum* may select at the end of the second semester of the Freshman Year, and shall select not later than the end of the second semester of the Sophmore Year, a major department in which he shall pass courses to a total of 24 semester credits with grades of C or better. Courses in other departments closely related to the major courses may be counted with the consent of the major supervisor and the College Dean. Departments shall designate in the Catalogue in their descriptions of courses those which will not count for major credit. In addition to satisfactorily completing (1) 24 semester credits in the major field and (2) the divisional requirements, each student, at the discretion of his major department, may be required to:

   a. Pass a comprehensive examination in his major field

   or

   b. Prepare a satisfactory paper on a subject in his field of concentration approved by his supervisor.

D. *Requirements for a Degree — All* PRESCRIBED CURRICULUMS

1. A student registered in a Prescribed Curriculum must satisfy the General University Requirements and the General College Requirements described in previous pages.
2. *Inasmuch as all Prescribed Curriculums are intended to furnish professional or semi-professional preparation, students selecting them are held for the successful completion of all the courses prescribed and generally in the sequence in which they are arranged in the Curriculum.*
3. A student pursuing a Prescribed Curriculum must meet the quality requirements established for that Curriculum. (See descriptions of the curriculums on preceding pages.)

UNIVERSITY OF NEW HAMPSHIRE

GENERAL LIBERAL ARTS CURRICULUM

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
Military and Air Science 1-2 *(For men)*	1½	1½
P. E. 31, 32, *(For men)*	½	½
P. E. 1, 2, *(For women)*	1	1
*Hist. 1, 2, *Introduction to Contemporary Civilization*	3	3
†A Biological Science *(Biol. 1-2)* or a Physical Science *(Chem. 1-2; §Chem. 3-4; Geol. 1-2; Math. 2, 13; Math. 11, 13; or **Phys. 1-2)*	3–4	3–4
Engl. 1-2, *Freshman English*	3	3
‡Electives to meet semester requirements		
	16	16
SOPHOMORE YEAR		
Military and Air Science 3-4 *(For men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Elect one year's work from each of the three following groups: (See group requirements page 86)		
Group I. Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy	2–3	2–3
Group II. †A Biological Science *(Biol. 1-2)* or a Physical Science *(Chem. 1-2; §Chem. 3-4; Geol. 1-2; Math 2, 13; Math. 11, 13; Phys. 1-2; or Phys. 21-22)*	3–6	3–6
Group III. Economics, Government, Phychology, Sociology	3	3
Electives to meet semester requirements		
	16	16
JUNIOR YEAR		
P. E. 5, 6, *(For women)*	1	1
Major courses and electives to meet semester requirements.		
	16	16
SENIOR YEAR		
Major courses and electives to meet semester requirements.		
	16	16

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*In certain curriculums Hist. 1, 2 is scheduled for the Sophomore Year.

†Students electing a Biological Science during their Freshman Year must elect a Physical Science during their Sophomore Year, or *vice versa*.

§Chemistry 3-4 is required for pre-medical students and all who intend to take advanced work in chemistry.

**Students who expect to major in physics should not register for Physics 1-2 but should elect sufficient mathematics to be able to schdule Mathematics 17-18 and Physics 21-22 in the Sophomore Year.

‡See Special Language Requirement page 85.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 85.

BUSINESS CURRICULUM

FRESHMAN YEAR

	First Semester Credits	*Second Semester Credits*
*See Freshman requirements, page 85.		
B. Ad. 1-2, *Elementary Accounting*	4	4
	16	16

SOPHOMORE YEAR

	First Semester Credits	*Second Semester Credits*
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Econ. 3, *Economic and Commercial Development of U. S.*	3	
†B. Ad. 24, *Introduction to Business*		3
Econ. 1-2, *Principles of Economics*	3	3
Elective from Group I	3	3
Elective from Group III	3	3
Electives from other than Econ. and B. Ad.		
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy.

Group III. — Six semester credits from Government; History; Psychology; Sociology

JUNIOR YEAR

	First Semester Credits	*Second Semester Credits*
P. E. 5, 6 *(For women)*	1	1
B. Ad. 21-22, *Commercial Law*	3	3
Econ. 25, *Marketing*	3	
Econ. 51, *Labor Economics*	3	
B. Ad. 23, *Business Communications*	3	
Electives from *Econ.* and *B. Ad.*	3	3
Engl. (35), *Public Speaking*		3
Electives		
	16	16

SENIOR YEAR

	First Semester Credits	*Second Semester Credits*
Econ. 53, *Money and Banking*, †B. Ad. 68, *Personnel Ad.*	3	3
B. Ad. 34, *Business Management*		3
Econ. 31, *Economic and Business Statistics*	3	
Econ. 56, *Corporation Finance*		3
Electives from *Econ.* and *B. Ad.*	3	3
Electives		
	16	16

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*Students offering one or more units of Physical Science for admission are advised to elect Biol. 1-2. Students offering one or more units of Biological Science for admission are advised to elect Physical Science.

†Requirement waived for 1951-1952.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 72.

BUSINESS CURRICULUM

(Accounting Option)

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Econ. 3, *Economic and Commercial Development of U. S.*	3	
B. Ad. 24, *Introduction to Business*		3
Econ. 1-2, *Principles of Economics*	3	3
B. Ad. 3-4, *Intermediate Accounting*	3	3
Elective from Group I	3	3
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy.

JUNIOR YEAR		
P. E. 5, 6 *(For women)*	1	1
B. Ad. 7, 8, *Cost Accounting*	3	3
B. Ad. 21-22, *Commercial Law*	3	3
B. Ad. 23, *Business Communications*	3	
Engl. 35, *Public Speaking*	3	
Econ. 56, *Corporation Finance*		3
Econ. 25, *Marketing*	3	
Elective from Group III	3	3
Electives		
	16	16

Group III. — Six semester credits from Government; History; Psychology; Sociology

SENIOR YEAR		
B. Ad. 55, *Advanced Accounting*	3	
B. Ad. 56, *Federal Tax Accounting*		3
B. Ad. 57, *Auditing*, B. Ad. (59), *Accounting Systems*	3	3
Econ. 53, *Money and Banking*, B. Ad. 68, *Personnel Administration*	3	3
Econ. 31, *Economic and Business Statistics*	3	
Electives		
	16	16

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 72.

HOTEL ADMINISTRATION CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 85. (Include Biol. 1-2 or Chemistry 1-2)		
H. A. 1, *Orientation*	½	
Arts 20, *Elementary Drafting*		2
†Elective		
	16	16

SOPHOMORE YEAR	First Semester Credits	Second Semester Credits
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34	½	½
B. Ad. 1-2, *Elementary Accounting*	4	4
Econ. 1-2, *Principles of Economics*	3	3
Phys. 1-2, *Introductory Physics*	4	4
H. Ec. 15-16, *Foods*	3	3
H. A. 42, *Lectures on Hotel Management*		½
Elective		
	16	16

*JUNIOR YEAR	First Semester Credits	Second Semester Credits
B. Ad. 9-10, *Hotel Accounting*	3	3
E. E. 31, *Circuits and Appliances*	4	
M. E. 40, *Heating and Ventilating*		3
H. Ec. 49-50, *Quantity Cookery*	3	3
H. A. 5, *Hotel Operation*	3	
H. A. 26, *Hotel Engineering Problems*		3
H. A. 44, *Lectures on Hotel Management*		½
Elective from Group I	3	3
Elective		
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English (not including Speech); Hum. 1-2; Music 33-34; Languages; Philosophy

*SENIOR YEAR	First Semester Credits	Second Semester Credits
B. Ad. 21-22, *Commercial Law*	3	3
H. Ec. 45, *Furniture and Textiles*	3	
H. A. 46, *Lectures on Hotel Management*		½
Psych. 32, *Industrial Phychology*		3
Elective from Group III	3	3
Elective		
	16	16

Group III. — Six semester credits from Government; History; Sociology

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†Psychology 1 is prerequisite to Psychology 32 required in the Senior Year.

*In addition to the requirements listed above, each student is required to secure before graduation a minimum of 20 points of Hotel Practice credit.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 73.

UNIVERSITY OF NEW HAMPSHIRE

MEDICAL TECHNOLOGY CURRICULUM

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
See Freshman requirements, page 85. (Include Biology 1-2 *and* Chemistry 3-4).		
Math.* 11, 13, *Algebra, Trigonometry*	3	3
Electives to meet semester requirements		
	16	16

SOPHOMORE YEAR		
P. E. 3, 4	1	1
Chem. 25, *Introductory Quantitative Analysis*	4	
Chem. (45), *Organic Chemistry*		5
Hist. 1, 2, *Introduction to Contemporary Civilization*	3	3
Zool. 17, *Human Anatomy*	4	
Zool. 18, *Human Physiology*		4
Elective from Group I	3	3
	15	15

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13. 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy.

JUNIOR YEAR		
P. E. 5, 6	1	1
Agr. Chem. 56, *Physiological Chemistry*		5
Bact. 1, 8, *General* and *Pathogenic Bacteriology*	4	4
Phys. 1-2, *Introductory Physics*	4	4
Elective from Group III	3	
Elective (Language or other)	3	3
	15	17

Group III. — Six semester credits from Economics; Government; Psychology; Sociology.

SENIOR YEAR		
Bact. 53, *Immunology and Serology*	4	
†Biol. 62, *Clinical Laboratory Methods*		16
Elective from Group III	3	
Electives (Language or other)		
	18	16

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*Mathematics 2 may be substituted if the prerequisite for Mathematics 11 is not satisfied.

†Students will register for Biology 62 in the second semester of the Senior Year. The requirements of this course are to be met by a 12-month laboratory period in a hospital school of medical technology approved by the University. A grade of "Inc." (Incomplete) will be entered in the student's record at the end of the Senior Year. In order to remove the "Inc." the student must present an official transcript of the laboratory-training record and certification by the director of the hospital or laboratory and the supervisor of the curriculum that the work has been successfully completed. Zoology 57 cannot count for credit in the above curriculum since it may represent duplication of work in the hospital laboratory.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 73.

COLLEGE OF LIBERAL ARTS

NURSING CURRICULUM*

FRESHMAN YEAR

	First Semester Credits	Second Semester Credits
See Freshman requirements, page 85. (Include Biol. 1-2)		
Chem. 3-4, *General Chemistry*	4	4
	16	16

SOPHOMORE YEAR

	First Semester Credits	Second Semester Credits
P. E. 3, 4	1	1
Zool. 17, *Human Anatomy*	4	
Zool. 18, *Human Physiology*		3
Elective from Group I	3	3
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy.

JUNIOR YEAR

	First Semester Credits	Second Semester Credits
P. E. 5, 6	1	1
Agr. Chem. 1, *Organic and Biological Chemistry*	5	
Zool. 66, *Histology*		4
Elective from Group III	3	3
Elective		
	16	16

Group III. — Six semester credits from Economics, Government, Psychology, Sociology

TRAINING PERIOD

Credit earned in training at an approved hospital will apply toward a Bachelor's Degree.

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*This Curriculum is intended to precede hospital training.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 74.

UNIVERSITY OF NEW HAMPSHIRE

OCCUPATIONAL THERAPY CURRICULUM

Freshman Year	*First Semester Credits*	*Second Semester Credits*
See Freshman requirements, page 85. (Include Biol. 1-2)		
O. T. 23-24, *Elementary Drawing and Design*	2	2
Soc. 1, *Principles of Sociology*	3	
Soc. 4, *Problems of Social Disorganization*		3
	16	16

Sophomore Year		
P. E. 3, 4	1	1
O. T. 2, *Crafts*		2
O. T. 7-8, *Elementary Processes in Wood and Plastics*	2	2
O. T. (46), *Theory of Occupational Therapy*	3	
Psych. 1, *General Psychology*	3	
Psych. (47), *Mental Hygiene*		3
Zool. 17, *Human Anatomy*	4	
Zool. 18, *Human Physiology*		4
Elective from Group III	3	3
Elective		
	16	16

Group III. — Six semester credits from Economics; Government; History

Junior Year		
P. E. 5, 6	1	1
Arts 39, *Elementary Photography*	3	
*H. Ec. 25, 26. *Child Development*	3	3
O. T. 4, *Crafts*		3
O. T. 9, *Lettering and Printing*	2	
O. T. 15-16, *Ceramics, Modeling, and Puppetry*	2	2
O. T. 47, *Theory of Occupational Therapy*	2	
Psych. 48, *Psychopathology*		3
Zool. 19, *Kinesiology*	3	
Zool. 64, *Neurology*		4
Elective		
	16	16

Senior Year		
Hort. 40, *Outdoor Floriculture*		3
O. T. 5, 6, *Crafts*	3	3
O. T. 45, *Elementary Library Methods*	1	
O. T. 48, *Theory of Occupational Therapy*		3
**O. T. 49-50, *Clinical Subjects*	2	2
Elective from Group I	3	3
Elective		
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy

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*A student may substitute an approved elective.

**Alternate years for Juniors and Seniors; not offered in 1951-52.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGES 74-76.

PRE-MEDICAL CURRICULUM

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
See Freshman requirements, page 85. (Include Biol. 1-2 and Chemistry 3-4)		
Math.* 11, 13, *Algebra, Trigonometry*	3	3
Elective		
	16	16
SOPHOMORE YEAR		
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Chem. 25, 26, *Introductory Quantitative and Qualitative Analysis*	4	4
Hist. 1, 2, *Introduction to Contemporary Civilization*	3	3
†Language *(French or German)*	3	3
Zool. 7-8, *General Zoology and Comparative Anatomy*	4	4
‡Elective		
	16	16
JUNIOR YEAR		
P. E. 5, 6, *(For women)*	1	1
Chem. 51-52, *Organic Chemistry*	5	5
†Language *(French or German)*	3	3
Physics 1-2, *Introductory Physics*	4	4
§Social Science	3	3
‡Elective		
	16	16
SENIOR YEAR		
‖Humanities Group	3	3
§Social Science	3	3
Zool. (Course numbered 51 or above)	4	(or 4)
§Electives		

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*Math. 2 may be substituted for Math. 11 if high school prerequisites for Math. 11 are not presented as entrance credit.

†Either French or German. If the student passes an entrance reading test in either French or German, one year of the same language will fulfill the language requirement. To fulfill the requirement the student must complete either French 3-4, French 5-6 or German 5-6.

‡No more than 16 semester hours of Biology (including Botany, Bacteriology, Entomology, and Zoology), Chemistry, and Physics in addition to the required courses may be taken as elective.

§The student must complete 12 semester hours selected from courses in the following departments. Economics, Government, History (other than Hist. 1, 2), Psychology, Sociology. Courses from at least three of the five departments must be presented.

‖The student must complete 6 semester hours from the following courses: Humanities 1-2; Music 33-34; Arts 31, 32; Philosophy 1, 2, 4, 19; English 13, 14, 15, 16 (or English courses numbered 51-100).

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 76.

SECRETARIAL CURRICULUM*

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
See Freshman requirements, page 85.		
Electives		
	16	16

SOPHOMORE YEAR		
P. E. 3, 4	1	1
Econ. 3, *Economic and Commercial Development of the U. S.*	3	
B. Ad. 24, *Introduction to Business*		3
Sec. St. 1-2, *Shorthand*	3	3
Sec. St. 7-8, *Typewriting*	2	2
Sec. St. 23-24, *Business Writing*	3	3
Electives		
	16	16

JUNIOR YEAR		
P. E. 5, 6	1	1
B. Ad. 1-2, *Elementary Accounting*	4	4
Elective. Group I	3	3
†Sec. St. 3-4, *Advanced Shorthand*	3	3
†Sec. St. 9-10, *Advanced Typewriting*	2	2
Electives		
	16	16

Group I. — A year's work (two sequential semesters) from Art 31, 32; English 13, 14; 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy

SENIOR YEAR		
Sec. St. 11, *Filing*	2	
Sec. St. (13), *Office Machines*		2
Sec. St. 17-18, *Office Procedure and Practice*	3	3
B. Ad. 21-22, *Commercial Law*	3	3
Elective, Group III	3	3
Electives		
	16	16

Group III. — Six semester credits from Economics; Government; Psychology; Sociology

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*Students preparing to teach Secretraial Subjects must elect in addition a sufficient number of courses in Education to meet state requirements. See page 80 for a description of the Commercial Teacher Preparation Program as an option in the Secretarial Curriculum.

†A grade of C or better in Sec. St. 8 will be required of students electing Sec. St. 9-10; and a grade of C or better in Sec. St. 2 will be required of students electing Sec. St. 3-4.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 76.

SOCIAL SERVICE CURRICULUM

FRESHMAN YEAR	First Semester Credits	Second Semester Credits
See Freshman requirements, page 85. (Include Biol. 1-2)		
Soc. 1, *Principles of Sociology*	3	
Soc. 4, *Problems of Social Disorganization*		3
Electives		
	16	16

SOPHOMORE YEAR

Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Bact. 3, *Elements of Microbiology*	3	
Bact. 4, *Public Health and Sanitation*		3
Psych. 1, *General Psychology*	3	
Soc. 43, *Community Organization*	3	
Soc. 44, *Social Psychology*		3
Elective from Group I	3	3
Electives		
	16	16

Group I. — A year's work (two esquential semesters) from Arts 31, 32; Engl. 13, 14 or 15, 16; Hum. 1-2; Languages; Music 33-34; Philosophy

JUNIOR YEAR

P. E. 5, 6 *(For women)*	1	1
Soc. 71, *Crime and Its Social Treatment*	3	
Soc. 72, *The Family*		3
Soc. 73, *Introduction to Social Work and Public Welfare*	3	
Soc. 75, *Methods of Social Research*	3	
Elective from Group III	3	3
Electives		
	16	16

Group III. — Six semester credits from Economics, Government, History

SENIOR YEAR

Psych. 47, *Mental Hygiene*	3	
Soc. 84, *Methods of Social Progress*		3
Soc. 88, *Recreation and Leisure*		3
Soc. 95, 96, *Social Research Seminar*	3	3
Soc. 97, 98, *Social Service Field Work*	3	3
Electives		
	16	16

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 77.

ART EDUCATION CURRICULUM

	First Semester Credits	*Second Semester Credits*
See Freshman requirements, page 85.		
Arts 23-24, *Elementary Drawing and Design*	3	3
Electives		
	16	16
SOPHOMORE YEAR		
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4, *(For women)*	1	1
Arts 15, 16, *Ceramics*	2	2
Arts 25, 26, *Advanced Drawing and Design*	2	2
Ed. 41, *Principles of Educational Psychology*	3	
Ed. 42, *Educational Psychology of Adolescence*		3
Elective from Group I	3	3
Elective from Group III	3	3
Electives		
	16	16

Group I. — A year's work (two sequential semesters) from English 13, 14 or 15, 16; Languages; Music 33-34; Philosophy

Group III. — Six semester credits from Economics; Government; History; Psychology; Sociology

	First Semester Credits	*Second Semester Credits*
JUNIOR YEAR		
P. E. 5, 6 *(For women)*	1	1
Arts 31, 32, *Introduction to The Arts*	3	3
Arts 29, 30, *Advanced Painting, Water Color*	3	3
Arts 35, *Stagecraft*	½–1	
Arts 43, *Historic Costume*	3	
H. E. 32, *Home Furnishing*		3
Ed. (52), *Principles of American Secondary Education*	3	
Ed. (61), *Prin. and Problems of Teaching in the Secondary Schools*		4
Electives		
	17	17
SENIOR YEAR		
Arts 3, *Crafts*	3	
Arts 29, *Advanced Painting, Oil*	3	
Arts 35, *Stagecraft*	½–1	
Art-Ed. 91, *Problems of Teaching Art in Elementary Schools*	3	
Art-Ed. (92), *Problems of Teaching Art in Secondary Schools*	3	
Ed.-Art. 94, *Supervised Teaching*		12
Electives		
	18	12

DETAILED DESCRIPTIONS OF THIS CURRICULUM APPEARS ON PAGE 79.

MUSIC EDUCATION CURRICULUM

	First Semester Credits	Second Semester Credits
FRESHMAN YEAR		
See Freshman requirements, page 85.		
Music 9-10, *Sightsinging, Ear Training and Dictation I*	1	1
*Applied Music	2	2
**Recitals		
Electives		
	16	16
SOPHOMORE YEAR		
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34 *(For men)*	½	½
P. E. 3, 4 *(For women)*	1	1
Ed. 41, *Principles of Educational Psychology*	3	
Ed. 42, *Educational Psychology of Adolescence*		3
§Music 11-12, *Harmony I*	2	2
†Music 13-14, *Sightsinging, Ear Training and Dictation II*	1	1
Music 45, 46, *Music History and Literature*	2	2
Music 41-42, *Principles of Conducting*	1	1
*Applied Music	2	2
Music Organizations	½	½
Group III. — Six semester hours from Economics, Government, History, Psychology, or Sociology	3	3
**Recitals		
	16½	16½
JUNIOR YEAR‡		
P. E. 5, 6 *(For women)*	1	1
Ed. 61, *Principles and Problems of Teaching in the Secondary School*	4	
Mus-Ed. (91), *Problems in Teaching of Elementary School Music*		3
Ed. 52, *Principles of American Secondary Education*		3
Language *(French, German, or Italian)*	3	3
Music 15-16, *Harmony II*	2	2
Mus-Ed. 97, *Teaching of Brass and Percussion*	2	
Music 97-98, *Orchestration and Chorestration*	2	2
*Applied Music	3	3
Music Organizations	½	½
**Recitals		
	17½	17½

For explanation of footnotes, see page 100.

Senior Year	First Semester Credits	Second Semester Credits
*Applied Music	2	
Mus-Ed. (92), *Problems in Teaching of Secondary School Music*	3	
Mus-Ed. 95, *Teaching of Stringed Instruments*	2	
Mus- Ed. (96), *Teaching of Woodwinds*	2	
Music Organizations	1	
Electives		
Ed-Mus. (93), *Supervised Teaching of Elementary School Music*		3–6
Ed-Mus. 94, *Supervised Teaching of Secondary School Music*		3–6
	16	6 or 12

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*A minimum of 16 semester hours in Applied Music must be offered by students in this Curriculum.

**Recitals — Students enrolled in this Curriculum must accumulate a minimum of 24 points in the Sophomore, Junior, and Senior Years. Attendance at each concert or recital constitutes one point.

§Although Music 9-10 is normally a prerequisite to 11-12, it may be taken simultaneously with 11-12 by permission of instructors.

†Music 13-14 is normally a prerequisite to 15-16 but may be taken simultaneously with 15-16 by permission of instructors.

‡All students in the Music-Education Curriculum must have a voice and piano audition at the end of the Junior Year, and an oral comprehensive examination covering all fields of Music preparation before entering upon practice teaching.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 80.

PHYSICAL EDUCATION
TEACHER PREPARATION CURRICULUM FOR MEN

FRESHMAN YEAR

	First Semester Credits	*Second Semester Credits*
See Freshman requirements, page 85. (Include Biol. 1-2)		
Basic course in second teaching major, *First year*	3	3
	16	16

SOPHOMORE YEAR

	First Semester Credits	*Second Semester Credits*
Military and Air Science 3-4 *(For Men)*	1½	1½
P. E. 33, 34	½	½
Ed. 41, *Principles of Educational Psychology*	3	
Ed. 42, *Educational Psychology of Adolescence*		3
P. E. 23, *Principles of Physical Education*	3	
Second teaching major; *Second year*	3	3
Zool. 17, *Human Anatomy*	4	
Zool. 18, *Human Physiology*		3
Group III	3	3
Elective		
	18	16

Group III. — Six semester credits from Economics; Government; Psychology; Sociology.

JUNIOR YEAR

	First Semester Credits	*Second Semester Credits*
Ed. (52), *Principles of American Secondary Education*	3	
Ed. (61), *Principles and Problems of Teaching in Secondary Schools*		4
‡Ed.-P. E. (93), *Directed Teaching in Physical Education*		3
P. E. 61, *Problems of Teaching in Physical Education*	3	
†Problems of coaching, *P. E. 45, (46)*	4	
†Problems of coaching, *P. E. (47), 48*		4
Second teaching major	3	3
Group I	3	3
Elective, *first teaching minor*		
	16	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy

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For explanation of footnotes, see page 102.

†Ed.-P. E. 93, *Directed Teaching in Physical Education*	3	
P. E. 65, *Administration of Physical Education in Secondary Schools*	3	
‡Problems of coaching, *P. E. 45, (46)*	4	
Problems in teaching, *Second teaching major, i.e., Engl.-Ed. 91, etc*	3	
Second Teaching major	3	
Supervised teaching in major or majors, *i.e., Ed.-Engl. 94, etc.*		6–12
Elective:		
P. E. 63, *Care and Prevention of Athletic Injuries*		
	18	6–12§

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‡This course is required and may be elected in the second semester of the Junior Year or the first semester of the Senior Year.

†Four problems of coaching courses are required.

§The student should take enough credits in Student Teaching to reach the 128 needed for graduation. He should not, however, take fewer than 6 credits.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 81.

PHYSICAL EDUCATION
TEACHER PREPARATION CURRICULUM FOR WOMEN‡

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
See Freshman requirements, page 85. (Include Biol. 1-2)		
Electives		
P. E. 11, 12	1	1
	16	16

SOPHOMORE YEAR

P. E. 3, 4	1	1
P. E. 23, *Principles of Physical Education*	3	
Ed. 41, *Principles of Edcational Psychology*	3	
Ed. 42, *Educational Psychology of Adolescence*		3
Zool. 17, *Human Anatomy*	4	
Zool. 18, *Human Physiology*		3
P. E. (36), *Recreation Leadership*	3	
Elective from Group I	2–3	2–3
Electives		
	17	16

Group I. — A year's work (two sequential semesters) from Arts 31, 32; English 13, 14 or 15, 16; Humanities 1-2; Languages; Music 33-34; Philosophy

JUNIOR YEAR

Physical Education Option†

P. E. 5, 6	1	1
Ed. 52, *Principles of Secondary Education*		3
P. E. 53, 54, *Survey of Dance*	2	2
P. E. 56, *Health Education*		3
P. E. 63, 64, *Theory of Team Sports*	2	2
Zool. 19, *Kinesiology*	3	
Elective from Group III	3	3
Electives		
	16	16

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‡Students desiring to go into physical therapy may, by petitioning, make certain substitutions in the above program.

†Students desiring to teach in areas in addition to Physical Education must plan to take Ed. 61. They must also elect 18 semester hours in this second field.

Recreation Option§

P. E. 5, 6	1	1
Arts 35, *Stagecraft*	½	
Arts 4, *Crafts*		2
Engl. 48, *Dramatics Workshop*		3
P. E. 24, *Organized Camping*		3
P. E. 53, 54, *Survey of Dance*	2	2
P. E. 63, 64, *Theory of Team Sports*	2	2
Soc. 1, 4 (if taken earlier elect 6 semester credits from Group III)	3	3
Electives		
	16	16

Group III. — Six semester credits from Government; History; Psychology; Sociology; Economics.

SENIOR YEAR

Physical Education Option†

P. E. 55, *Remedial Gymnastics*	3	
P. E. (66), *Administration of Physical Education*	3	
P. E. 73, 74, *Theory of Individual Sports*	1 or 2	1 or 2
P. E.-Ed. 91, *Problems in the Teaching of Physical Education for Women*	3	
Ed.-P. E. 92, *Directed Teaching of Physical Education for Women*		6
Electives other than Physical Education	3	3
	16	16

Recreation Option§

Biol. 42, *Field Biology and Nature Study*		3
*Music 33, *Music Appreciation*, or Music (33)	2	or 2
P. E. (66), *Administration of Physical Education*	3	
P. E.-Ed. 91, *Problems in the Teaching of Physical Education for Women*	3	
Ed.-P. E. 92, *Directed Teaching of Physical Education for Women*		3
Soc. 43, *Community Organization*	3	
Elective from Group I	3	3
Electives		
	16	16

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§In addition to the requirements listed above, each student is required to secure before graduation a minimum of 8 points of community recreation or camping credit.

†Students desiring to teach in areas in addition to Physical Education must plan to take Ed. 61. They must also elect 18 semester hours in this second field.

*If Music has already been taken in the Sophomore Year, 3 additional hours in Group I must be taken in the Senior Year.

DETAILED DESCRIPTION OF THIS CURRICULUM APPEARS ON PAGE 81.

COLLEGE OF TECHNOLOGY

LAUREN E. SEELEY, *Dean*

DEPARTMENTS

CHEMICAL ENGINEERING
CHEMISTRY
CIVIL ENGINEERING
ELECTRICAL ENGINEERING
MATHEMATICS
MECHANICAL ENGINEERING
PHYSICS

REQUIREMENTS FOR DEGREES

Baccalaureate Degrees. — Each candidate for a degree must complete 144 semester credits including the courses required in one of the Four-Year Curriculums, and achieve a grade-point average of at least 1.8. These degrees are: B. S. in Chemistry, B. S. in Chemical Engineering, B. S. in Civil Engineering, B. S. in Building Construction, B. S. in Electrical Engineering, B. S. in Mechanical Engineering, and B. S. in Physics.

Professional Degrees.—Mechanical, Electrical, and Civil Engineering graduates of the University of New Hampshire are eligible to register as candidates for professional degrees in these three branches of Engineering.

These degrees will be granted, after the preparation and submission of acceptable theses, to those having not less than four years' satisfactory professional experience subsequent to the Bachelor's Degree, in which the applicants have wholly or in part supervised, directed, or designed engineering work; or have been in responsible charge of instruction or research in Engineering. The acceptability of the thesis and professional experience is determined by an Examing Committee.

PROCEDURE. — The procedure for candidates for professional Engineering degrees is as follows:

(1) Prepare an outline for a thesis after consultation with the Chairman of the Department concerned. This consultation may be by letter.

(2) When the thesis subject is accepted by the Chairman of the Department in which the degree is to be taken, the candidate will be registered in the Recorder's Office. This registration must be completed by October 1 of the academic year in which the degree is to be conferred.

(3) The first draft of the thesis must be submitted to the professor in charge not later than March 1, and the complete thesis in its final form by May 1.

(4) Pass an oral examination at the University covering the candidate's professional practice and the engineering principle underlying the thesis.

THESIS. — The thesis must be typewritten upon standard paper, 8½ by 11 inches medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with title, name of author, degree sought, and year of graduation. The title page should bear the following statements:

"A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the professional degree of mechanical engineer (electrical engineer, civil engineer)."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a Professional Engineering Thesis by the University of New Hampshire.

Two bound copies must be filed before Commencement Day, one with the Librarian and one with the Chairman of the Department in which the major is done.

The second page of each copy of the thesis shall bear the date of approval and the signature of each member of the examining committee following the statement:

"This thesis has been examined and approved."

(signed) ————————————
Name Date

CURRICULUMS

The College of Technology offers the following Four-Year Curriculums:

Building Construction Curriculum. — This Curriculum which is offered by the Department of Civil Engineering is designed to give the student basic training and instruction in engineering and general building construction practice; to acquaint him with and to train him in the problems connected with the construction of light buildings and houses; to develop in the student an understsanding of and appreciation for the relationships of the client, architect, engineer, builder, manufacturer, and public agencies in planning, designing, financing, and erecting public and private buildings. Inquiries for additional information should be directed to the Chairman of the Department of Civil Engineering.

Chemical Engineering Curriculum. — Chemical Engineering is that branch of engineering which involves the application of chemistry, physics, mathematics, and fundamental engineering principles to the design, construction, operation, control, and improvement of equipment for carrying out chemical processes on an industrial scale at the lowest possible cost. The Chemical Engineering Curriculum, therefore, is designed to give the student basic training in the physical sciences, engineering principles, and economics, and thus enable him to become a member of this profession. Although Chemical Engineering is a distinct profession, chemical engineers are considered to be members of the chemical profession as well as of the engineering professison and a considerable portion of the Chemical Engineering Curriculum is devoted to the science of Chemistry. However, emphasis is placed not upon the laboratory phases of Chemistry but upon the large-scale manufacture of chemical products.

Chemistry Curriculum. — This Curriculum is intended to prepare the student for the career of a professisonal chemist in industry and to give a good foundation for further study in graduate schools leading to original and independent research.

Instruction is imparted by lectures, recitations, and carefully supervised laboratory work. The laboratory study is largely individual and the course work of each student is planned to furnish a broad knowledge of chemical science. The student is given a training in either German or French to enable him to read with ease the chemical literature, and a grounding in Mathematics and Physics necessary for the later courses in Chemistry. In the Senior Year an independent research project, which permits the student to use the reference library and chemical periodicals throughout the course of the laboratory investigation, is undertaken.

Civil Engineering Curriculum. — This Curriculum is designed to give the student theoretical and practical instruction in the principles upon which the practice of Civil Engineering is based, and to allow him the opportunity to apply these principles to problems of professional practice in the classroom, in the design room, and in the field.

Civil Engineering, the oldest of the engineering professions, covers a broad field of activity, including Topographical, Structural, Transportation, Hydraulic and Sanitary Engineering. This Curriculum places about equal emphasis upon each of these various branches.

Electrical Engineering Curriculum. — The Electrical Engineering Curriculum is intended to meet the demands of young men fitting themselves for professional Engineering in connection with the various applications of electricity.

Courses are presented by lectures, recitations, and laboratory practice in such a manner as to make the material of immediate service to the graduate, as well as to prepare him to understand the constantly increasing number of new developments in this field.

Mechanical Engineering Curriculum. — The Mechanical Engineering Curriculum is intended to meet the demands of young men fitting themselves for professional practice in Mechanical Engineering. The courses in the Curriculum include Mathematics, Physics and Chemistry, Drawing, Machine Design, Electrical Engineering, Power Engineering, and also courses in Economics and English. Throughout the Curriculum the theoretical work is supplemented by practice in mechanical operations and scientific research, by training in the use of tools for working metals, and by experimental tests and demonstrations in the mechanical, electrical, chemical, and physical laboratories.

Physics Curriculum. — The Technology Curriculum in Physics is intended to offer basic training in fundamentals, supplemented by laboratory work, in the various branches of Physics. Opportunity is given in the Senior Year for experimental investigation in some of the fields of Physics under guidance of staff members. Such a curriculum prepares one equally well either for basic research in industry or the various government research organizations or for continued academic study toward the more advanced degrees.

Note. — Agricultural Engineering is offered by the College of Agriculture (see pp. 51-52). Basic science and some engineering courses in the Curriculum of Agricultural Engineering are given by the College of Technology.

Alumni Representation. — An Advisory Committee of Alumni of the College of Technology, composed of men in direct contact with industry and practical professional affairs, serves to keep the Faculty in touch with developments in the several fields which attract our graduates. Members of this committee also serve as consultants when important changes in curriculums, Faculty personnel, and policies of administration are considered. The members are:

John T. Crogham, B.S. in M.E., '08, 574 Chestnut Street, Waban, Mass.
Donald B. Keyes, Ph.D., B.S. in Chem. '13, Heyden Chemical Corporation, 393 Seventh Ave., New York 1, N. Y.
Donald W. Loiselle, B.S. in C.E., '40 (M.S., Harvard, '41), Bridgeport Hydraulic Company, Bridgeport, Ct.
Austin S. Norcross, B.S. in E.E. '25 (M. Sc. Mass. Inst. Tech. '29), Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.
Lester A. Pratt, Ph.D., '09, 7 Everett Avenue, Winchester, Mass.

BUILDING CONSTRUCTION

Freshman Year	First Semester Credits	Second Semester Credits
P. E. 31-32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3-4, *General Chemistry*	4	4
C. E. 2, *Surveying*		2
Engl. 1-2, *Freshman English*	3	3
Math. 11, *Algebra*	3	
Math. 13, *Trigonometry*	3	
Math. 14, *Analytic Geometry*		3
Math. 16, *Calculus I*		3
M. E. 1-2, *Engineering Drawing*	2	2
	17	19

Sophomore Year		
P. E. 33-34	½	½
Military and Air Science 3-4	1½	1½
B-CE 11-12, *Domestic Architecture*	2	2
C. E. 11, *Surveying*	3	
Econ. 1-2, *Principles of Economics*	3	3
Geol. 7, *General Geology*		2
Math. 17-18, *Calculus II and III*	3	3
Phys. 21-22, *General Physics*	6	6
	19	18

Junior Year		
B. Ad. 1-2, *Elementary Accounting*	4	4
B-CE 21-22, *Building Construction*	3	3
C. E. 15, *Engineering Materials*	3	
C. E. 27, 28, *Theory of Structures*	4	4
E. E. (33), *Fundamentals of Electricity*		4
M. E. 9-10, *Mechanics*	3	4
	17	19

Senior Year		
B-CE 31-32, *Professional Practices*	3	3
C. E. 31, *Community Planning*	3	
C. E. 62, *Soil Mechanics and Foundatiins*		3
C. E. 65, *Structural Design*	4	
C. E. 66, *Reinforced Concrete Structures*		4
Econ. 24, *Marketing*		3
M. E. 21, *Heat Power Engineering*	3	
M. E. 39, *Heating and Air Conditioning*	2	
Approved Elective	3	4
	18	17

COLLEGE OF TECHNOLOGY

CHEMICAL ENGINEERING

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
P. E. 31, 32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3-6, *General; Inorganic*	4	6
Engl. 1-2, *Freshman English*	3	3
M. E. 1, *Engineering Drawing*	2	
Math. 11, *Algebra*	2	
Math, 13, *Trigonometry*	3	
Math. 14, *Analytical Geometry*		3
Math. 16, *Calculus I*		3
	17	17

SOPHOMORE YEAR		
P. E. 33, 34	½	½
Military and Air Science 3-4 *(For Men)*	1½	1½
Chem. 21, *Semi-Micro Qualitative Analysis*	4	
Chem. 22, *Quantitative Analysis*		5
Econ. 1-2, *Principles of Economics*	3	3
Math. 17-18, *Calculus*	3	3
Phys. 21-22, *General Physics*	6	6
	18	19

JUNIOR YEAR		
Chem. 31, *Tech. Quantitative Analysis*	3	
Chem. 33, *Stoichiometry*	2	
Chem. 53-54, *Organic Chemistry*	5	5
Chem. 83-84, *Physical Chemistry*	5	5
Ch. E. 71-72, *Unit Processes*	2	2
Ch. E. 74, *Unit Operations*		3
E. E. 33, *Fundamentals of Electricity*		4
Math. 19 *Engl. 35* or Approved Elective	3	
	20	19

SENIOR YEAR		
Ch. E. 75, *Unit Operations*	3	
Ch. E. 76, *Chemical Engineering Economics*		3
Ch. E. 77, *Unit Operations Laboratory*	3	
Ch. E. 78, *Chemical Plant Design*		3
Ch. E. 79, *Chemical Engineering Thermodynamics*	3	
Ch. E. 80, *Chemical Engineering Project* or Approved Elective		5
Chem. 87-88, *Chemical Literature and Seminar*	1	1
M. E. 7-8, *Mechanics* or Approved Elective	4	4
Approved Elective	2	2
	16	18

TECHNOLOGY CURRICULUM IN CHEMISTRY

FRESHMAN YEAR

	First Semester Credits	*Second Semester Credits*
P. E. 31, 32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3-6, *General; Inorganic*	4	6
Engl. 1-2, *Freshman English*	3	3
M. E. 1, *Engineering Drawing*	2	
Math. 11, *Algebra*	3	
Math. 13, *Trigonometry*	3	
Math. 14, *Analytic Geometry*		3
Math. 16, *Calculus I*		3
Ger. 1-2, *Elements of German Grammar*	3	3
	20	20

SOPHOMORE YEAR

P. E. 33, 34	½	½
Mil. Sci. 3-4	1½	1½
Chem. 21, *Semi-Micro Qualitative Analysis*	4	
Chem, 22, *Quantitative Analysis*		5
Ger. 7-8, *Scientific German or Econ.* 1-2 *or Hist.* 1-2 *or Engl.* 35 *or B. Ad.* 24 or *Approved Elective*	3	3
Math. 17, 18, *Calculus*	3	3
Phys. 21-22	6	6
	18	19

JUNIOR YEAR

Chem. 31, *Tech. Quantitative Aanalysis*	3	
Chem, 33, *Stoichiometry*	2	
Chem. 53-54, *Organic Chemistry*	5	5
Chem. 62, *Instrumental Analysis*		4
Chem. 83-84, *Physical Chemistry*	5	5
Govt. 1, 4 or Approved Elective	3	3
	18	17

SENIOR YEAR

Chem. 55, 56, *Organic Chemistry*	3	3
Chem. 85, 86, *Physical Chemistry*	3	3
Chem. 87, 88, *Chemical Literature and Seminar*	1	1
Chem. 89-90, *Thesis* or *Approved Elective*	5	5
Approved Electives	6	6
	18	18

COLLEGE OF TECHNOLOGY

CIVIL ENGINEERING

FRESHMAN YEAR

	First Semester Credits	*Second Semester Credits*
P. E. 31-32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3-4, *General Chemistry*	4	4
C. E. 2, *Surveying*		2
Engl. 1-2, *Freshman English*	3	3
Math. 11, *Algebra*	3	
Math. 13, *Trigonometry*	3	
Math. 14, *Analytic Geometry*		3
Math. 16, *Calculus I*		3
M. E. 1-2, *Engineering Drawing*	2	2
	17	19

SOPHOMORE YEAR

P. E. 33-34	½	½
Military and Air Science 3-4	1½	1½
C. E. 3-4, *Surveying*	6	3
C. E. 6, *Route Surveying*		3
Math. 17-18, *Calculus II and III*	3	3
Phys. 21-22, *General Physics*	6	6
	17	17

JUNIOR YEAR

C. E. 15, *Engineering Materials*	3	
C. E. 27-28, *Theory of Structures*	4	4
C. E. 41, 42, *Student Chapter A.S.C.E.*	½	½
C. E. 52, *Fluid Mechanics*		4
E. E. (33), *Fundamentals of Electricity*		4
Geol. 7, *General Geology*	2	
M. E. 9-10, *Mechanics*	3	4
M. E. 21, *Heat Power Engineering*	3	
Econ. 1-2, *Principles of Economics*	3	3
	18½	19½

SENIOR YEAR

C. E. 43, 44, *Student Chapter A.S.C.E.*	½	½
C. E. 61, *Highway Engineering and Transportation*	4	
C. E. 62, *Soil Mechanics and Foundations*		3
C. E. 63-64, *Hydraulic and Sanitary Engineering*	4	5
C. E. 65, *Structural Design*	4	
C. E. 66, *Reinforced Concrete Structures*		4
Engl. 23, *Writing of Technical Reports*		2
Approved Elective	6	3
	18½	17½

ELECTRICAL AND MECHANICAL ENGINEERING

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
P. E. 31, 32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3-4, *General Chemistry*	4	4
Engl. 1-2, *Freshman English*	3	3
Math. 11, *Algebra*	3	
Math. 13, *Trigonometry*	3	
Math. 14, *Analytical Geometry*		3
Math. 16, *Calculus*		3
M. E. 1-2, *Engineering Drawing*	2	2
	17	17

Note: The program for the Freshman Year in the Curriculums in Electrical Engineering and Mechanical Engineering is the same.

The programs for the Sophomore, Junior, and Senior Years in the Electrical Engineering Curriculum are given on page 113. The programs for the Sophomore, Junior, and Senior Years in the Mechanical Engineering Curriculum are given on page 114.

ELECTRICAL ENGINEERING

SOPHOMORE YEAR	*First Semester Credits*	*Second Semester Credits*
P. E. 33, 34	½	½
Military and Air Science 3-4	1½	1½
Econ. 1-2, *Economics*	3	3
E. E. 1-2, *Electrical Engineering*	3	4
Math. 17-18, *Calculus*	3	3
M. E. (4), *Kinematics*	3	
Phys. 21-22, *General Physics*	6	6
	20	18

JUNIOR YEAR		
E. E. 3-4, *Electrical Engineering*	3	3
E. E. 5, *Circuit Theory*	3	
E. E. 6, *Electronics*		4
E. E. 15, 16, *A. I. E. E. Required*		
E. E. 23-24, *Electrical Laboratory*	2	2
Math. 19, *Differential Equations*	3	
*Math. 20, *Differential Equations*		3
M. E. 7-8, *Mechanics*	4	4
M. E. 23-24, *Heat Power Engineering*	3	3
M. E. 27, 28, *Mechanical Laboratory*	1	1
	19	17

SENIOR YEAR		
C. E. 23, *Fluid Mechanics*	3	
E. E. 12, *Illumination*		2
E. E. 17, 18, *A. I. E. E. Required*		
E. E. 25, *Electrical Laboratory*	4	
E. E. 45, *Electrical Engineering*	3	
E. E. 7, *Electronics*	4	
*E. E. 58, *Communication Systems*		4
*E. E. 60, *Advanced Circuit Theory*		4
*E. E. 70, *Advanced Electronics Laboratory*		2–4
*E. E. 76, *Electrical Laboratory*		4
*E. E. 78, *Industrial Electronics*		4
Engl. (23), *Writing of Technical Reports*		2
M. E. 65, *Engineering Economy*	3	
M. E. 66, *Industrial Management*		3
Phys. 64, *Electrical Measurements*		3
Approved non-technical elective. Optional	1–3	3
	17–19	16

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*E.E. 58, 60, 70, 76, 78, and Math. 20 are elective courses. Seniors are expected to enroll in a minimum of 14 credits chosen from the required and elective courses of the second semester, not including the non-technical elective.

MECHANICAL ENGINEERING

Sophomore Year

Sophomore Year	*First Semester Credits*	*Second Semester Credits*
P. E. 33, 34	½	½
Military and Air Science 3-4	1½	1½
Econ. 1-2, *Economics*	3	3
Math. 17-18, *Calculus*	3	3
M. E. 3, *Machine Drawing*	2	
M. E. 4, *Kinematics*		3
M. E. 11-12, *Manufacturing Processes*	2	2
Phys. 21-22, *General Physics*	6	6
	18	19

Junior Year

Approved Elective	3	3
E. E. 37-38, *Electrical Machinery*	4	4
M. E. 7-8, *Mechanics*	4	4
M. E. 19-20, *Mechanical Engineering Materials*	3	2
M. E. 23-24, *Thermodynamics*	3	3
M. E. 29-30, *Mechanical Laboratory*	2	2
M. E. 59, 60, *A. S. M. E.*	0	0
	19	18

Senior Year

Approved Elective	3	3
C. E. 23, *Fluid Mechanics*		3
Engl. 23, *Writing of Technical Reports*	2	
M. E. 15-16, *Machine Design*	3	3
M. E. 51, *Mechanical Laboratory*	2	
M. E. 53-54, *Power Plants*	2	3
M. E. 55-56, *Internal Combustion Engines*	3	3
M. E. 61, 62, *A. S. M. E.*	0	0
M. E. 65, *Engineering Economy*	3	
M. E. 66, *Industrial Management*		3
	18	18

TECHNOLOGY PHYSICS

FRESHMAN YEAR	*First Semester Credits*	*Second Semester Credits*
P. E. 31, 32	½	½
Military and Air Science 1-2	1½	1½
Chem. 3, 4, *General Chemistry*	4	4
Engl. 1-2, *Freshman English*	3	3
Math. 11-14, *Algebra, Analytical Geometry*	3	3
Math. 13-16, *Trigonometry, Calculus*	3	3
M. E. 1, *Engineering Drawing,* Approved Elective	2	3
	17	18
SOPHOMORE YEAR		
Econ. 1-2, *Economics*	3	3
P. E. 33, 34	½	½
Military and Air Science 3-4	1½	1½
Math. 17-18, *Calculus*	3	3
Ger. 1-2, *German*	3	3
Phys. 21-22, *General Physics*	6	6
	17	17
JUNIOR YEAR		
Approved Elective	5	5
Math. 19, 20, *Diff'l. Eq'ns, Applied Mathematics*	3	3
Phys. 81, *Optics*	4	
Phys. 82, *Heat*		4
Phys. 83-84, *Theory of Electricity & Magnetism*	4	4
Phys. 85-86, *Advanced Mechanics*	3	3
	19	18
SENIOR YEAR		
Approved Elective	4	8
Phys. 91-92, *Modern Physical Theories*	3	3
Phys. 93-94, *Theoretical Physics*	3	3
Phys. 95-96, *Advanced Laboratory*	2	2
Phys. 97, *Electrical Discharge Through Gases*	4	
Math. 65-66, *Advanced Calculus*	3	3
	19	19

THE GRADUATE SCHOOL

Albert F. Daggett, *Dean*

The Graduate School, which has offered instruction since 1903, has for its objective the bringing together of faculty and qualified students in a spirit of scholarship and research. The graduate student is given opportunity to specialize in some field of knowledge, and to develop a maturity of thought and attitude toward his professional field, so that both his professional and his cultural life are enhanced. Graduate work is offered by members of the University departments of instruction and research. Administrative functions and supervision of advanced students are delegated to the Dean of the Graduate School and the Executive Council.

Degrees

Graduate programs are offered by the following departments: Agricultural and Biological Chemistry, Agricultural Economics, Agronomy, Animal Husbandry, Bacteriology, Biology, Botany, Chemical Engineerng, Chemistry, Civil Engineering, Dairy Husbandry, Electrical Engineering, Entomology, Horticulture, Mathematics, Mechanical Engineering, Physics, Poultry Husbandry, and Zoology leading to the Master of Science degree; Economics, English, Government, History, Languages, Psychology, and Sociology leading to the Master of Arts degree, and Education leading to the Master of Education degree.

Assistantships and Scholarships

Graduate assistantships are available in a number of departments. The work reqoired may be in the nature of research, teaching, or general service. For information regarding assistantships, one should direct inquiries to the chairman of the department concerned.

A limited number of graduate scholarships are available each year. The recipient of such a scholarship is exempted from the payment of tuition. Requirements for the awards are: 1) a superior undergraduate record, and 2) the successful completion of a qualifying examination administered by the University Counseling Service. For information concerning scholarships one should direct inquires to the Dean of the Graduate School.

Information

For detailed information concerning admission, requirements for degrees, description of courses open to graduate students, and other matters not covered here, interested persons are invited to direct inquiries to the Dean of the Graduate School. The Graduate School issues its own bulletin which may be obtained upon request to the Office of the Graduate School.

DESCRIPTION OF COURSES

(Departments Alphabetically Arranged)

The title of the course is given in small capital letters. The numeral designates the particular course. Odd numerals indicate courses normally offered in the first semester; even numerals indicate courses normally offered in the second semester. Arabic numerals enclosed in parentheses indicate that a course is repeated in the semester following. Thus course 1 (1) is offered in the first semester and is repeated in the second semester.

Roman numerals given in parentheses following the course numbers indicate the examination group of the course. Every course is assigned to one of 22 examination groups. As all courses in the same examination group have their final examination at the same time, a student may not register for two courses with the same examination number. Course with examination group number 0 have no final examination, so that more than one course in this group may be scheduled by a student. For courses marked (-) see time and room schedule. Courses with a single section ordinarily are assigned to an examination group which is reserved for classes meeting at the same time. These groups are: classes meeting Monday, Wednesday, Friday at 8 A.M., Group I; Monday, Wednesday, Friday at 9 A.M., V; Monday, Wednesday, Friday at 10 A.M., IX; Monday, Wednesday, Friday at 11 A.M., XIII; Monday, Wednesday, Friday at 12, noon, XVII; Monday, Wednesday, Friday at 1 A.M., XX; Monday, Wednesday, Friday at 2 P.M., XXI; Tuesday, Thursday, Saturday at 8 A.M., XIX; Tuesday, Thursday, Saturday at 9 A.M., XV; Tuesday, Thursday, Saturday at 10 A.M., XI; Tuesday, Thursday, Saturday at 11 A.M., VII; Tuesday, Thursday P.M., III.

Courses numbered 1-50 cannot be counted for graduate credit. Courses numbered 50-100 are for Juniors, Seniors, and Graduate Students. They are not open to Freshmen and Sophomores.

Following the title is the course description and the name of the instructor.

The next paragraph gives the following information in the order indicated (1) prerequisites, if any; (2) the number of hours of recitations or laboratory periods required each week; (3) the number of semester credits the course will count in the total required for graduation. Lectures and recitations are fifty minutes in length. Laboratory periods are usually two and one-half hours in length.

Abbreviations have been employed to indicate the number of hours of work required of students in lecture, recitation, and laboratory, and the number of credits given for satisfactory completion of each course. The abbreviations should be interpreted as follows:

Cr.	Semester hour credit
Lab.	Laboratory
Lec.	Lecture
Prereq.	Prerequisite
Rec.	Recitation

All courses (unless otherwise marked) are open to students who have passed the prerequisites.

An elective course will be given only when there is a minimum of five students registered therefor.

If the numerals designating a course running through both semesters are connected by a hyphen, the first semester, or its equivalent, is a prerequisite for the second semester. If the numerals are separated by a comma, properly qualified students may take the second semester without having had the first.

Students must register for the number of credits or within the range of credits shown in the Catalogue description of a course.

AGRICULTURE

A grouping of non-departmental courses

DEAN'S OFFICE, COLLEGE OF AGRICULTURE

1. ORIENTATION. A non-departmental course offering an opportunity to discuss matters not ordinarily reviewed in other courses of instruction. Attention will be given to selected student rules and regulations, scholarships, campus organizations and facilities, opportunities in agriculture as a science, and to programs of study. Also, Federal Aid as related to Land-Grant colleges and universities will be discussed. Mr. Grinnell. Required of first-semester Freshmen in Agriculture and Home Economics. 1 lec.; 1 cr.

AGRICULTURAL EXTENSION

3. PRINCIPLES OF CO-OPERATIVE EXTENSION WORK. The development, legal basis, description of projects and operations of field staffs, methods of influencing people through meetings, demonstrations, publicity, radio, and visual aids. Mr. Hoitt and other members of the staff of Agriculture and Home Economics Extension Service. Open to Juniors and Seniors in Agriculture and Home Economics by permission of the instructor. (Alternate years; not offered 1951-52). 2 lec.; 2 cr.

4. SUPERVISED EXTENSION WORK. A limited number of general Agricultural and Home Economics Seniors may be permitted to do some supervised Extension work under the immediate direction of a member of the staff of Agriculture and Home Economics Extension Service. This may be taken during the second semester of the Junior and Senior Years. In some cases arrangements may be made for supervised work during summer vacation period. Mr. Hoitt. 2 to 6 cr.

AGRICULTURAL EDUCATION

91-92. PROBLEMS IN TEACHING HIGH SCHOOL AGRICULTURE. The course will cover in considerable detail the following topics: the vocational point of view, building the course of study in agriculture, providing teaching facilities, planning the lesson, planning and teaching farm machines, supervised farming programs, Future Farmers of America, young farmer programs, adult farmer programs, and miscellaneous activities of the teacher of Agriculture. Mr. Barton. Required of Juniors or Seniors in Teacher Preparation Curriculum. 2 lec. 1 lab. 3 crs.

93. SUPERVISED TEACHING IN HIGH-SCHOOL AGRICULTURE. This course provides the trainee with the opportunity for obtaining participating experiences in teaching Vocational Agriculture. The work is carried on in a well organized department of Vocational Agriculture under the guidance of a critic teacher. The enrollee is required to assume the duties and responsibilities expected of the regular teacher of agriculture before the work for the semester is concluded. Mr. Barton. 13 crs.

ACCOUNTING

(See Economics and Business Administration)

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

Thomas G. Phillips, *Professor;* Stanley R. Shimer, *Associate Professor;* Arthur E. Teeri, *Associate Professor;* Helen J. Purinton, *Associate Professor;* Margaret E. Loughlin, *Assistant.*

1. (I). Organic and Biological Chemistry. An introduction to Organic Chemistry and a brief survey of Biological Chemeistry. Mr. Shimer, Mr. Phillips, Miss Purinton. Prereq.: Chem. 2 or 4, 3 lec.; 2 lab.; 5 cr.

2. (I). Plant Chemistry. The chemistry of plant growth, soils, and fertilizers. Mr. Phillips, Prereq.; Agr. Chem. 1 or its equivalent. 2 lec.; 1 lab.; 3 cr.

4. (XIX). Animal Nutrition. The chemistry of animal nutrition. Mr. Shimer. Prereq.: Agr. Chem. 1 or its equivalent. 2 lec.; 1 lab.; 3 cr.

6. (I). Chemistry of Food and Nutrition. The chemistry of food materials and of digestion, absorption, metabolism, and excretion. Miss Purinton. Prereq.: Agr. Chem. 1 or its equivalent. 2 lec.; 1 lab.; 3 cr.

51-52. (XIII). Physiological Chemistry. The chemistry of fats, carbohydrates, and proteins; colloids, enzyme action, digestion, metabolism, and excretion. The qualitative and quantitative examination of blood and urine. Mr. Shimer, Mr. Teeri. Prereq.: Satisfactory preparation in Organic Chemistry and Quantitative Analysis. 3 lec.; 2 lab.; 5 cr. Under special conditions a student may register for the lectures in this course (3 cr.) after obtaining the consent of the instructor and the approval of the Dean of the College.

53-54. Agricultural Analysis. A study of the methods of analysis of soils, fertilizers, feeding stuffs, and other products important in Agriculture. Mr. Phillips, Mr. Shimer, Prereq.: Satisfactory preparation in Organic Chemistry and Quantitative Analysis. 1 lec.; 3 lab.; 4 cr.

56 (—). Physiological Chemistry. An introductory but comprehensive study of the theory, problems, and techniques involved in the qualitative and quantitative methods commonly used in medical diagnostic work. Mr. Teeri. Prereq.: Satisfactory preparation in Organic Chemistry and Quantitative Analysis. 3 lec.; 2 lab.; 5 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

AGRICULTURAL ECONOMICS

Harry C. Woodworth, *Professor;* Keith Burkett, *Associate Professor;* J. R. Bowring, *Associate Professor.*

12. (XIII). Economics of the Agricultural Industry. Production and distribution problems of the agricultural industry, the nature of farming costs, agricultural prices, farm credit, land utilization, Federal and State action programs, and agricultural policy. Mr. Woodworth. Prereq.: Econ. 1. 3 lec.; 3 cr.

14. (I). Farm Management. The theory and practice of managing a farm for maximum income. Subject matter includes enterprise selection; simple production economics; adjustment to prices; management of land, labor, and equipment; obtaining of capital; records and analysis of performance. Farm visits, farm planning and management problems are part of the procedure. Mr. Burkett. Elective for Juniors and Seniors. 3 lec.; 1 lab.; 4 cr.

52. (IX). Co-operative Business. Stress is placed on the organizational, legal, and financial problems of farmer's business corporations engaged in buying and selling. Selected problems of general agricultural marketing are integrated with the course content. Elective for Juniors and Seniors. 3 lec.; 3 cr.

56. (XIII.) Agricultural Marketing. The structure responsible for the distribution of agricultural products will be reviewed. Emphasis will be placed on the theory of price determination, interregional trade, imperfect competition, and public and private administration of prices in agriculture. Mr. Bowring. 3 lec.; 3 cr.

60. (V). Agricultural Policy. Public policies concerning land utilization, conservation of soil and forest resources, price supports, and production control will be studied and appraised. The objectives and effect of various action programs will be noted. Mr. Woodworth. Prereq.: Agr. Econ. 12, 3 lec.; 3 cr.

67, 68 (0.) Special Problems. Special assignments in readings and problems to satisfy student's needs. Mr. Woodworth, Mr. Grinnell, Mr. Burkett, Mr. Bowring. Prereq.: special permission. 1 to 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

AGRICULTURAL ENGINEERING

Bernard P. Rines, *Assistant Professor;* Arthur G. Fox, *Instructor;*
Paul A. Gilman, *Assistant Professor of Applied Farming*

11. (--). Home Building. The principles involved in selecting a home which is best fitted to the needs, desires, and activities of one's own family group are considered. A study of existing homes and published plans is supplemented by practice in original design through simple sketch plans. Mr. Rines. Prereq.; Home Economics major or permission of instructor. 1 lec.; 1 lab.; 2 cr.

12. (--). Home Equipment. The application of engineering principles and practices to the problem of making the home comfortable, convenient, and livable. The selection, care and maintenance of cooking heating, refrigeration, cleaning and other equipment are studied. Mr. Rines. Prereq.: Home Economics major or permission of instructor. 2 lec.; 1 lab.; 3 cr.

15 (0.) Agricultural Engineering Shop. Designed to give the engineering student an appreciation of the problems of manufacture and repair. Practice in oxy-acetyline and electric arc welding, machining and cold metal work, soldering, pipe fitting, and the care and use of woodworking tools. The

Staff and Mr. Gilman. Registration limited to Agricultural Engineering students. 1 3-hr. lab.; 1 cr.

17-18. (0). Farm Shop. Primarily for teacher-training students. The selection, care and use of tools needed for modern farm operation and maintenance, with practice in basic tool operations. The development of skills in handling tools for maintenance and construction work on the farm. Mr. Gilman. 2 labs.; 2 cr.

Note: Courses 21 through 30 not open to Agricultural Engineering majors or Technology students.

21. (--). Soil and Water Survey. An elementary study of engineering principles used in land measurement, drainage, erosion control, irrigation, farm water supplies, and sewage systems. Mr. Fox. Prereq. Math. 13. 1 lec.; 1 3-hr. lab.; 2 cr.

22. (--). Farm Power. A study of engines used in farm work and how they may be used to the best advantage. Coverage includes engine maintenance and repair, discussion of lubrication and fuels, and elementary problems on power transmission such as encountered in the use of belting. Mr. Fox. Prereq.: Math. 13, Phys. 1. 1 lec.; 1 3-hr. lab.; 2 cr.

23. (--). Farm Machinery. The study of the mechanism of farm production machinery; selection, care, performance and use. Mr. Fox and Mr. Rines. Prereq. Math. 13 and Phys. 1. 1 lec.; 1 3-hr. lab.; 2 cr.

24. (--). Farm Structures. Elementary drawing, interpretation of drawings for farm structures; estimating materials and costs; problems in planning and designing of simple farm structures, and preliminary considerations of different types of farm structures. The Staff. Prereq. Math. 13. 1 lec.; one 2-hr. lab.; 2 cr. (Alternate years; offered in 1951-52).

25. (--). Farm Electrical Equipment. An elementary study of the electrical equipment used on New England farms covering factors in the selection of motors, heat sources, lighting, refrigeration and step-saving electrical controls. Planning farm wiring for use of equipment is discussed. Mr. Rines. Prereq.: Math. 13 and Physics 1. 1 lec.; 1 2-hour. lab.; 2 cr.

29-30. (0). Mechanized Agriculture Seminar. One or more papers will be written and presented orally on some subject of timely interest in the field of Mechanized Agriculture by each student during the semester. Class discussion led by the student and guided by the Staff will follow the presentations. Open only to Seniors in Mechanized Agriculture. The Staff. 1 hour weekly; 1 cr.

Note:—Courses 31 through 40 open only for Agricultural Engineering majors and Technology students.

31. (—). Soil-Water Engineering. The design and application of erosion control structures, drainage and irrigation system; including a study of pumps and water systems as used in irrigation and farm water supply. Mr. Fox. Prereq. C. E. 9, Math. 13. Ag. Eng. 40 concurrently; 1 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-52).

32. (--). I. C. Engines for Agriculture. The construction and operating principles of internal combustion engines used in Agriculture; ignition,

carburetors, fuels, lubrication, cooling systems, power transmissions; rating, testing and maintenance of tractors. Mr. Fox. Prereq. Physics 22, M. E. 23. Agr. Eng. 40 concurrently; 1 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-52).

33. (--). Agricultural Machinery. A study of machinery employed in producing and harvesting farm crops; selection, design features, capacity, power requirements and adjustments. Mr. Fox and Mr. Rines, Prereq. Physics 22; Agr. Eng. 40 concurrently; 1 lab.; 1 lec.; 3 cr. (Alternate years; not offered in 1951-52).

34. (--). Agricultural Structures. The structural design and functional planning of farm structures; materials and cost estimates, types of construction, problems in ventilation and temperature control. Mr. Fox. Prereq. M. E. 23. 1 lec.; 1 lab.; Agr. Eng. 40 concurrently; 3 cr. (Alternate years; offered in 1951-52).

35. (--). Electrical Applications in Agriculture. A technical study of the use of electricity on farms with emphasis on single phase electrical apparatus. Coverage includes the application of motors and heat sources, lighting, types of refrigeration, electric fences, design of wiring systems, and crop handling and processing at farm buildings. Mr. Rines. Prereq. E. E. 33 or 37, M. E. 4, and M. E. 23, Agr. Eng. 40 concurrently; 1 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-1952).

(40). 40 (0). Problem-Seminar. Open only to those students concurrently registered in one or more of courses Agr. Eng. 31 through Agr. Eng. 35. Students will solve problems in the field or fields of agricultural engineering covered by the courses for which they are concurrently registered. An oral explanation of the procedure used will follow each problem, and in some cases papers may be required. The Staff. 2-hour computation; Credit only through concurrent courses.

AGRONOMY

Ford S. Prince Professor; Leroy J. Higgins, *Associate Professor;* Louis T. Kardos, *Associate Professor;* ...., *Assistant Professor*

11. (V). Soils. The nature and properties of soils, fundamental physical, chemical, and biological processes and characteristics of productive soils. Mr. Higgins. 3 lec.; 1 lab.; 4 cr.

12. (V). Forest Soils. The physical, chemical, and biological properties of forest soils. Soil formation, classification, erosion, and soil map interpretation. 3 lec.; 1 lab.; 4 cr.

14. (V). Fertilizers and Fertility. The manufacture and use of fertilizers, the production, composition, and care of farm manure and the relationship to crop response and soil fertility. Mr. Prince. 2 lec.; 1 lab.; 3 cr.

21. (XIII). Crop Production. Producton of agronomic crops, distribution, choice, growth processes, cropping practices, seed beds, care, improvement, and breeding. Mr. Higgins. 2 lec.; 1 lab.; 3 cr.

24. (XIII). Cereal and Grain Crops. Study of and production of corn, oats, barley, rye and other grain crops. Mr. Higgins. Prereq.: Agron. 11, 14, and 21, or permission of instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-52).

25. (0) Seed Testing. Official method of analysis of agricultural seeds for purity and germination, the identification of seeds, and the technique used in weighing, germinating, counting, and recording. Mrs. Sanborn in charge. Prereq.: Bot. 1 and permission of instructor. Hours arranged; 1 lab.; 1 cr.

26. (XIII). Potatoes and Other Cash Crops. The production of potatoes, field beans, sweet corn, and other cash crops. Mr. Higgins. Prereq.: Agron. 11, 14, and 21, or permission of instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-52).

28. (XI). Forage and Pasture Crops. Forage grasses and legumes, forage production, pasture crops and swards, and pasture management practices. Mr. Higgins. Prereq.: Agron. 11, 14, and 21, or permission of instructor. 2 lec.; 1 lab. 3 cr.

57. (V). Soil Physics. The physical constitution and colloidal properties of soils; their measurement and relation to structure, water movement, aeration and temperature in soils. Mr. Kardos. Prereq.: Agron. 11, 14, and Phys. 1. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-52).

58. (V). Soil Classification and Mapping. The origin, morphology, classification, and mapping of soils. Relationships of the Great Soil Groups of the world to crop production. Special emphasis is devoted to the soils of New Hampshire. Prereq.: Agron. 11, Geol. 1 or 7 and other courses at the discretion of the instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-52).

59. (V). Soil Chemistry. A study of the methods of evaluating nutrient levels in soils and of principles underlying the liberation, absorption, and fixation of nutrient elements in soils. Mr. Kardos. Prereq.: Agr. Chem. 1, 2, and Agron. 11, 14, 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-1952).

60. (V). Soil Conservation. The causes and effects of soil erosion. Cropping systems, fertilizer practices and structural devices used in erosion control. Prereq.: Agron. 11, 14, 21. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-1952).

71, 72 (0). Agronomy Seminar. Library and reference work on special phases of soil and crop problems. Practice in looking up literature and in preparation of reports and abstracts. Mr. Prince and Staff. Prereq.: Agron. 11, 14, 22. Elective for Seniors. 1 to 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

ANIMAL HUSBANDRY

Loring V. Tirrell, *Professor;* Fred E. Allen, *Associate Professor;* Donald M. Kinsman, *Instructor*

2. (XV). Types and Market Classes of Livestock. Origin, history, development, characteristics, and adaptabilty of the different types of horses, cattle, sheep, and swine, with practice in judging. Mr. Tirrell. 2 lec.; 1 lab.; 3 cr.

11. (III). Livestock Judging. The principles and practice of judging horses, beef cattle, sheep, and swine. It includes trips to some of the best New England breeding establishments and is required of candidates for judging teams. Mr. Kinsman. 1 lab.; 1 cr.

13. (XIII). Feeds and Feeding. The character, composition, and digestibility of feed stuffs and the principles and methods of feeding different kinds of farm animals. Mr. Tirrell. 3 lec.; 3 cr.

14. (III). Advanced Livestock Judging. A continuation of Animal Husbandry 11. It serves as a basis for the selection of a livestock team for competition such as held at the Eastern States Exposition and the International at Chicago. Mr. Kinsman. Prereq.: A.H. 11. 1 lab.; 1 cr.

15. (I). Systematic Anatomy. The general anatomy and physiology of domestic animals. Dr. Allen. 3 lec.; 3 cr.

16. (I). Animal Diseases. The prevention, control, and treatment of the bacterial and parasitic diseases of domestic animals. Dr. Allen. Prereq.: A.H. 15. 3 lec.; 3 cr.

18. (XXI). Meat and Its Products; Livestock Markets. A study of meat, farm slaughter, curing and identification of cuts; livestock, markets, stockyards, and transportation, with occasionl trips to slaughter houses and packing plants. Mr. Tirrell and Mr. Kinsman. 1 lec.; 1 lab.; 2 cr.

19. (I). Management of Horses and Beef Cattle. Selection, feeding, breeding, management, and preparation for the show ring of horses and beef cattle with special reference to New England conditions. Mr. Tirrell. 2 lec.; 1 lab.; 3 cr.

20. (V). Sheep and Swine Husbandry. Selection, breeding, feeding, management, and preparation for the show ring of sheep and swine, with special reference to New England conditions. Mr. Tirrell and Mr. Kinsman. 2 lec.; 1 lab.; 3 cr.

21.(--). Light Horse Husbandry. Origin, history, development, judging selection, feeding, breeding and management of light horses. Special emphasis will be placed upon saddle-horse selection, the show ring classes, and judging. Horse show management will be discussed. Mr. Tirell. 1 lec.; 1 lab.; 2 cr.

51. (V). Animal Breeding. The principles and practices of breeding farm animals including cross-breeding, in-breeding, selection, inheritance, breed analysis, reproductive efficiency, fertility and sterility. Mr. Kinsman. 3 lec.; 3 cr.

52 (0). Animal Husbandry Seminar. Library and reference work and preparation of papers on various Animal Husbandry subjects of timely importance. Mr. Tirrell. 1 to 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

THE ARTS

George R. Thomas, *Professor;* Edwin Scheier, *Assistant Professor;* Wesley F. Brett, *Assistant Professor;* Philip D. Wheaton, *Instructor:* Richard Merritt, *Instructor;* Eleanor Tinsley, *Instructor;* John W. Hatch, *Instructor;* Esther S. Drew, *Instructor;* John S. Perrin, *Instructor;* Edith Yeomans, *Instructor.*

Visiting Lecturers in Clinical Subjects

Anna L. Philbrook, B.S., M.D.C.M., *Psychiatry;* David K. Webster, B.S. M.D., *Physical Disabilities;* Lester R. Whitaker, M.D., *Surgical Conditions;* S. Gerard Griffin, B.S. M.D., *General and Tuberculosis Conditions;* Robert F. Wilson, A. B., M.D., *Pediatrics;* Thomas F. Reid, M.D., *Ophthalmology and Otology;* John Angus MacDonald, B.Sc., M.D., C.M., *Medical Terminology.*

Supervisors of Clinical Training

Mrs Phyllis Hauenstein, Miss Eileen Dixey, Miss Helen Askren, Miss Frances Nicoll, Mrs. Mary Golden, Miss Ruth Rumsey, Miss Gladys Pattee, Miss E. Ann Meyers, Mrs. Eleanor Black, Miss Minnie Witham, Miss Dorothy Merrill, Miss Vesta Alexander, Miss Irene Ringel, Mrs. Charlotte Briggs.

Student Workshop. — An experimental arts laboratory located in Hewitt Hall, open to any student in the University, whether or not enrolled in arts courses. Equipped with woodworking tools and machinery, printing-presses, silk screen printing equipment, air brush, facilities for block printing, model making, making of decorations, repairing of skiis and other sports equipment, wood-carving, plastics, and other hobby interests. Supervised by Mr. Brett.

General Courses in the Arts

All laboratory courses listed in this section are limited in enrollment. Students should consult the instructor in charge before registering.

In those courses where the students retain finished products, they pay the cost of materials used. The Department of The Arts reserves the right to retain for exhibition purposes two examples of each student's work in each class of instruction.

3. (0). Crafts. A course offering opportunities to become acquainted with work in leather, book binding, metal modeling, chip carving and other crafts which require little special equipment and which may be carried on in elementary and secondary schools. Covers design, methods of teaching each craft, sources of materials and tools, and current literature. Miss Tinsley. For Art-Education students; also, elective by permission. 2 lab.; 2 cr.

4. (0). Crafts. Craft activities for summer camps, playgrounds, settlement and scout groups. Experience in design and construction in leather, paper, wood, metal, scrap and native materials. Special emphasis on methods of teaching and using crafts in camp handcraft programs, sources of materials and tools, and current literatures. Miss Tinsley. For Recreation, Physical Education, and Social Service students; also, elective by permission. 2 lab.; 2 cr.

5, (5). (0). **METALWORK AND JEWELRY.** Structural and decorative design and construction in various metals, such as pewter, copper and silver. This course may be repeated, in which case advanced projects will be assigned. *This course may be taken for credit no more than four times.* Miss Tinsley. Elective by permission. 2 lab.; 2 cr.

(6), 6. (0), **WEAVING AND TEXTILE DESIGN.** Students choose either: (A) weaving, or (B) a group of textile design methods including stenciling, block printing, silk screen printing, and others, to follow for the entire semester; (B) only available in second semester. This course may be repeated in which case advanced projects will be assigned. *This course may be taken for credit no more than four times.* Miss Tinsley. Elective by permission. 2 lab.; 2 cr.

11, (11). (0). **MODELING.** Modeling in relief and the round figure. An introduction to ceramic sculpture and to the processes of casting in plaster and papier-mache. Mr. Scheier. 2 lab.; 2 cr.

15, 16. (0). **CERAMICS** (Pottery.) Design and construction. Studio practice in throwing, casting, modeling, decorating, glazing, and firing of pottery, tiles, and figures. Modeling in ceramic clay and plasticine. Study of casting problems. Mr. Scheier. 2-3 lab.; 2-3 cr.

17, 18. (0). **CERAMICS** (Pottery). A further study of design and construction, with special emphasis on decoration and the preparation and application of glazes. Mr. Scheier. Prereq.: Arts 15, 16. 2-3 lab.; 2-3 cr.

20. (0). **ELEMENTARY DRAFTING.** Elementary drafting procedures, including lettering and use of instruments. Study of architectural symbols. Interpretation of typical hotel plans and statistical data by graphical representation. 2 lab.; 2 cr. *For Hotel Administration students.*

23, (23). (0). **ELEMENTARY DRAWING AND DESIGN.** An introductory course stressing the creative use of line, form, space, texture, color, and other visual elements. Emphasis is placed upon individual expression. Mr. Perrin. 2-3 lab.; 2-3 cr.

24. (0). **ELEMENTARY DRAWING AND DESIGN.** A continuation of Arts 23. Drawing and designing from nature and the human figure. Problems in three dimensional design. Mr. Perrin. Prereq: Arts 23. 2-3 lab.; 2-3 cr.

25, 26. (0). **ADVANCED DRAWING AND DESIGN.** Advanced studio exercises in various media. Original composition, life drawing and an introduction to oil painting. Various aspects of picture making such as composition, perspective, modes of form description, etc., will be stressed. Theories of color, scientific and aesthetic, and their application. Outdoor sketching. Mr. Hatch. 2-3 lab.; 2-3 cr.

29, 30. (0). **ADVANCED PAINTING.** A general advanced study of special types, depending upon the student's previous training. A variety of studio work under individual supervision and criticism. This course may be taken a second time. Mr. Hatch. Elective by permission only. Credits to be arranged.

31, 32. (IX). **INTRODUCTION TO THE ARTS.** A broad historical survey of man's creative efforts in their relation to contemporary cultural and social movements, presented as a background for interpreting the place of The Arts in individual and community life of today. Illustrated lectures with assigned readings. Mr. Thomas. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

33. (V). HISTORY OF WESTERN PAINTING. An historical survey of man's pictorial expression from the prehistoric cave to the eighteenth century drawing-room. The study includes Oriental, Classic, and Gothic art with emphasis on the Renaissance and seventeenth century painting. The painting of each culture is studied in relation to the thought and feeling of its particular period. Illustrated lectures and assigned reading. Mr. Hatch. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

34. (V). MODERN WESTERN ART. A study of modern western art beginning with the American and French Revolutions. Stresses the concepts of Classicism and Romanticism, the rise of Impressionism and the many schools of thought prevalent in twentieth century painting. Illustrated lectures with assigned readings. Mr. Hatch. For Sophomores, Juniors, and Seniors. 3 lec.; 3 cr.

35, (35). (0). STAGECRAFT. A laboratory course in the technical phases of play production, including a study of the design of scenery, methods of execution and lighting. Practice in design, construction, painting and lighting of scenery; practical experience in the handling of properties, manipulation of scenery, lighting and mechanical effects. *This course may be taken a second time, but no more than one semester credit may be earned.* Mr. Wheaton. ½—1 cr.

39, (39). (XX). ELEMENTARY PHOTOGRAPHY. The theory and technique of photography, covering camera operation, developing, printing, and enlarging. Projects stress imaginative solutions to problems concerning portrait, campus life, fashion, and advertising. Mr. Merritt. Open to Sophomores, Juniors, and Seniors with permission of the instructor. 1 lec.; 2 lab.; 3 cr. (The cost of materials will approximate $7.50.)

40. (0). ADVANCED PHOTOGRAPHY. The theory and practice of color photography. Application of basic photo-techniques to outdoor and studio projects in color. A term paper will be required together with a series of color photographs representative of the student's progress. Permission of the instructor. Mr. Merritt. 1 rec.; 2 lab.; 3 cr. (The cost of materials will approximate $10.00.)

43. (V). HISTORIC COSTUME. A study of the costume changes from the primitive to the present and something of the historical events that influenced such changes. Mrs. Yeomans. 3 lec. or rec.; 3 cr.

44. (XXI). COSTUME DESIGN. Adaptation of period costume to modern use, including designing and making garments for individual students. Mrs. Yeomans. Prereq.: Arts 43. 2 lab.; 2 cr.

ART-EDUCATION (ART-ED.) 91. (0). PROBLEMS OF TEACHING ART IN ELEMENTARY SCHOOLS. The purposes and objectives of teaching art in elementary schools; selection and organization of teaching material; teaching techniques which may be advantageously employed in the elementary schools. Mr. Thomas. Open only to Juniors and Seniors in the Art-Education Curriculum. Prereq.: Ed. 61 with grade of C or better. 2 rec.; 1 lab.; 3 cr.

ART-EDUCATION (ART-ED.) 92. (0). PROBLEMS OF TEACHING ART IN SECONDARY SCHOOLS. The purpose and objectives of teaching art in the secondary schools; selection and organization of teaching material; teaching techniques which may be advantageously employed in the secondary school art program. Mr. Thomas. Open only to Juniors and Seniors in the Art-Education Curriculum. Prereq.: Ed. 61 with a grade of C or better. 2 rec.: 1 lab.; 3 cr.

EDUCATION-ART (ED.-ART) 94. (0). SUPERVISED TEACHING IN SECONDARY SCHOOL ART. Prereq.:Art-Ed. 92. One semester of Supervised Teaching. 12 cr.

Selection from the following courses offered by several departments within the University may, with the consent of the Chairman of the Department and the College Dean, be counted toward a major program in the Arts.

CLOTHING CONSTRUCTION. See HOME ECONOMICS.

DOMESTIC ARCHITECTURE. See BUILDING CONSTRUCTION.

ELEMENTARY LANDSCAPE GARDENING. See HORTICULTURE.

FLORAL ARRANGEMENT. See HORTICULTURE.

FURNITURE AND TEXTILES. See HOME ECONOMICS.

HOME BUILDING AND FURNISHING. See AGRICULTURAL ENGINEERING and HOME ECONOMICS.

TEXTILES. See HOME ECONOMICS.

For courses in Music, Dramatic Art, and Dancing, see Departments of Music, English, Physical Education for Women.

The Department promotes on the Campus a series of exhibitions and lectures treating The Arts. Visits to near-by museums and points of interest are arranged from time to time, and published lists of these visits are available. The following are a few of the art centers within a convenient radius of Durham: Addison Gallery of American Art, Currier Gallery of Art, and several excellent museums and galleries in Boston, including the Boston Museum of Fine Arts, the Gardner Museum, the Fogg Museum at Harvard University and the Institute of Contemporary Art.

BACTERIOLOGY

LAWRENCE W. SLANETZ, *Professor;* CLARA H. BARTLEY, *Assistant Professor;* ARTHUR F. HOWE, *Assistant Professor*

1. (XV). GENERAL BACTERIOLOGY. Principles of bacteriology; morphology, physiology and classification of bacteria and other microorganisms, and their relationships to agriculture, industry, sanitation, and infectious diseases Mr. Slanetz, Mrs. Bartley, and Mr. Howe. Prereq.: Chem. 1-2 or equivalent; 2 lec.; 2 lab,; 4 cr.

2. (I). FOOD AND SANITARY BACTERIOLOGY. Relation of microorganisms to food production; food preservation; food infections and intoxications; standard laboratory methods for the bacteriological examination of foods. Bacteriology and sanitation of water, sewage, air, and eating utensils. Disinfection and disinfectants. Mrs. Bartley. Prereq.: Bact. 1. 2 lec.; 2 lab.; 4 cr.

3. (VII). ELEMENTS OF MICROBIOLOGY. Lectures and recitations or laboratory demonstrations on the nature and characteristics of bacteria, viruses, yeasts and molds; the relationships of these microorganisms to agriculture, industry, sanitation, and infectious diseases. For students who, as part of their cultural training, desire some knowledge of microbes and their role in everyday life. This course does not satisfy prerequisites for other Bacteriology courses. *Students cannot obtain credit for both Bact. 3 and Bact. 1.* Mr. Slanetz. 3 lec. or rec.; 3 cr. (*Not open to Freshmen*)

4. (VII). PUBLIC HEALTH AND SANITATION. A consideration of the causal agents, prevalence, transmission, and control of the communicable diseases. Sanitation of water, sewage, food, and air. Community hygiene and public health administration. Mr. Slanetz. Prereq.: Biol. 1-2, or consent of instructor. 3 lec., or demonstrations; 3 cr.

6. (XIII). AGRICULTURAL AND SOIL BACTERIOLOGY. Study of important soil bacteria and their role in soil fertility; characteristics of bacteria and viruses causing plant disease. Mr. Howe. Prereq.: Bact. 1. 2 lec.; 3 cr.

8. (XV). PATHOGENIC BACTERIOLOGY. A study of the morphological, cultural, biochemical, serological, and pathogenic characteristics of microorganisms causing human and animal diseases. Mr. Slanetz, Mrs. Bartley, and Mr. Howe. Prereq.: Bact. 1. 2 lec.; 2 lab.; 4 cr.

53. (XV). IMMUNOLOGY AND SEROLOGY. The theories of infection and immunity; production of vaccines; toxins, and antiserums; serological techniques for disease diagnosis and identification of bacteria, including agglutination, precipitin, and complement fixation tests. Mrs. Bartley. Prereq.: Bact. 8. 2 lec.; 2 lab.; 4 cr.

55, 56. (0). PROBLEMS IN BACTERIOLOGY. Special problems, depending upon the training and desire of the student . Elective only upon consultation. Mr. Slanetz and members of the staff. Credits to be arranged.

57, 58. (0). BACTERIOLOGY SEMINAR. Reports and discussions on current literature and recent developments in bacteriology. Mr. Slanetz and members of the staff. Prereq.: Bact. 2 or 8 and consent of the instructor. One 2-hour period; 1 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

BIOLOGY

1-2 (XVIII). MAN AND THE LIVING WORLD. This is a basic course in Biology. designed to give the student fundamental facts about himself and a broad understanding of his relation to the livinig world, both plant and animal, of which he is a part. This course is offered by the Division of Biological Science. It is supervised by a committee of the chairmen of the departments of Bacteriology, Botany, Entomology, and Zoology and the course chairman, Mr. L. J. Milne. 3 lec. or rec.; 1 lab.; 4 cr. *This course cannot be used to satisfy major requirements.*

42. (XI). FIELD BIOLOGY AND NATURE STUDY. An introduction to nature study, with emphasis on the recognition of certain common plants and

animals. The use of simple field keys designed for the layman will be included as part of the laboratory work. The avocational aspects of an acquaintance with living things in their natural environments will be stressed. This course is planned primarily for students in the Recreation option of the Physical Education Teacher Preparation Curriculum. Elective for others by permission of the chairman of the Department of Zoology. Prereq.: Biol. 2. 1 lec.; 2 lab.; 3 cr. *This course cannot be used to satisfy major requirements in Zoology or Botany.* (Alternate years; not offered in 1951-52.)

62. (0). CLINICAL LABORATORY METHODS. This is a 12-month course in Medical Technology taken at a hospital approved by the American Medical Association's Council on Medical Education and Hospitals, and the University of New Hampshire. It covers lectures and laboratory work in Bacteriology, Biochemistry, Hematology, Histology and Serology offered by qualified pathologists and medical technologists. The work will include lectures and informal discussions; demonstrations; supervised practice; quizzes; and written, oral and practical examinations. Credit will be allowed when the University has received a transcript of the candidate's record and certification by the director of the hospital laboratory that the work has been successfully completed. This course qualifies a candidate for the examination for the Medical Technologist's certificate. 16 cr. *This course cannot be used for graduate credit.*

BIOLOGY-EDUCATION (Biol-Ed.) 91. (XI). PROBLEMS IN THE TEACHING OF HIGH-SCHOOL BIOLOGY. Objectives and methods of teaching. The selection and organization of materials; the preparation of visual aids; the setting up of aquaria and other projects. The use of the field trip as a tool in teaching high-school Biology. Prereq.: Two years of Biological Science and Ed. 61 with a grade of C or better. (See page 145) 2 rec.; 1 lab. or field trip; 3 cr.

BIOLOGY-EDUCATION (Biol-Ed.) 95. PROBLEMS IN THE TEACHING OF HIGH-SCHOOL BIOLOGY. Objectives and methods of teaching; the selection and organization of materials; the preparation of visual aids; the setting up of aquaria and other projects. Some instruction in the preparation of Biological materials for the classroom; instruction in making models and aquaria. The use of the field trip as a tool in teaching high-school biology. This course is acceptable for Biology-Education 91; however, students who already have credit for Biology-Education 91 will not receive credit for this course. Prereq. Either (1) Two years of Biological Science and Education 61; or (2) A year of teaching of high-school biology. 2 rec.; 2 lab. or field trip; 4 cr. (*Offered in Summer Session only.*)

EDUCATION-BIOLOGY (ED.-BIOL.) 93, 94. (0). SUPERVISED TEACHING IN HIGH SCHOOL BIOLOGY. *See Page 146.*

BOTANY

ALBION R. HODGDON, *Professor;* M. C. RICHARDS, *Professor;* STUART DUNN, *Associate Professor;* MARIAN E. MILLS, *Assistant Professor;* CHARLOTTE G. NAST, *Assistant Professor.*

1. (1). GENERAL BOTANY. The principal plant groups with emphasis on structure, function, and economic importance stressing agricultural appli-

cations. Not open to students who have had Biology 1-2. Miss Mills. Required of Freshmen in Agriculture. 2 lec.; 2 lab.; 4 cr.

2. (V). General Botany. A general survey of the entire plant kingdom with emphasis on development, reproduction, and evolutionary trends. Miss Mills. Prereq.: Bot. 1. 2 lec.; 2 lab.; 4 cr.

3, (XIX). The Plant World. The structure and function of plant parts. The application of basis biological principles to plant life. Students who have had Bot. 1 should not elect this course. Mr. Hodgdon. Prereq.: Biol. 1-2. 3 lec.; 1 lab.; 4 cr.

5. (XX). Plant Anatomy and Cytology. The anatomy of vascular plants with special emphasis upon tissue development and structure. Includes a brief study of cytological phenomena. Miss Nast. Prereq.: Bot. 1 or Bot 3. 1 lec.; 2 lab.; 3 cr.

6. Systematic Botany. The identification and classification of our native trees, shrubs, and wild flowers. Mr. Hodgdon. Prereq.: Biol. 1-2 or Bot. 1; 1 lec.; 2 lab.; 3 cr.

12. (——). Morphology of the Vascular Plants. A study of the life histories of the Pteridophytes, Gymnosperms and Angiosperms, including comparisons of general structure and sexual organs. Miss Nast. Prereq.: Bot. 2 or Bot. 3. 2 lab.; 4 cr. (Alternate years; offered in 1951-1952.)

40. (XIX). Plant Physiology. Structure and properties of the cell; absorption and movement of water; metabolism; growth and irritability. Mr. Dunn. Prereq.: Bot. 1 or Bot. 3, and one year of Chemistry. 2 lec.; 2 lab.; 4 cr.

42. (I). Plant Ecology. Plant life and its environment including a consideration of the principal environmental factors such as light, temperature, soil water, and biotic relations; study of associations, successions, and plant forms; a survey of plant distribution and underlying causes. Mr. Hodgdon. Prereq.: Bot. 1 or Biol. 1, 2. 2 lec.; 3 cr.

51. (IX). Plant Pathology. The nature of disease in plants, the etiology, symptomatology, and classification of plant diseases. Mr. Richards. Prereq.: Bot. 1 or Bot. 3. 1 lec.; 2 lab.; 3 cr.

52. (VII). Principles of Plant Disease Control. Exclusion, eradication, protection and immunization, and the specific, practical methods used to control plant diseases. Mr. Richards. Prereq.: Bot. 1 or Bot. 3. 1 lec.; 1 labs.; 3 cr. (Alternate years; offered in 1951-52.)

55. (XV). Advanced Systematic Botany. The principles and laws of plant classification and nomenclature; study of plant families, field and herbarium work. Mr. Hodgdon. Prereq.: Bot. 6. Hours to be arranged. 4 cr.

57, 58. (0). Problems in (a) Systematic Botany, (b) Plant Physiology, (c) Plant Pathology, and (d) Plant Anatomy and Cytology. Elective only upon consultation with Chairman of Department. Mr. Hodgdon, Mr. Dunn, Mr. Richards, and Miss Nast. Hours to be arranged. 2 to 6 credits.

BUILDING CONSTRUCTION

E. T. Huddleston, *Professor of Architecture*

(Register the following subjects as: B-CE 11, 12, etc.)

11-12. (VI). Domestic Architecture. A comprehensive view of the architectural profession and the building construction industry to the end that the relationships of the architect, engineer, contractor, materials producer, and client may be better understood. A brief history of domestic architecture with special emphasis on early American housing, and its present-day influence. The solution of modern housing problems to develop the relation of the house plan to family requirements, individual site, garden, accessory buildings, and the community. 11, 2-rec.; 2 cr. 12, 1 rec.; 1 lab.; 2 cr. Elective by permission of instructor.

21-22. (XXI). Building Construction. Basic modern building materials and their use in the construction of walls, columns, floors, roofs, doors, windows, etc,. illustrating their varied application to contemporary architectural usage. Principles of structural design and an analysis of structural systems as applied to wood frame house, light and heavy timber, steel and reinforced concrete construction. The relation of structural systems in the solution of various types of building problems with special emphasis given to building code requirements for safety. 21, 3 rec.; 3 cr. 22, 2 rec.; 1 lab.; 3 cr.

31, 32. Professional Practices. The personal, ethical, business, and legal relations of the architect and consulting engineers with clients, contractors, etc. Procedure in the conduct of an architect's office with the preparation of complete contract documents for an assigned construction job, including advertisement, bond, form of proposal, information for bidders, agreement form, and general conditions covering the operational relations of the various parties to the contract. The fundamentals of specification writing and methods of estimating and appraising buildiings. 3 rec.; 3 cr.

BUSINESS ADMINISTRATION

(See Economics and Business Administration)

CHEMICAL ENGINEERING

Oswald T. Zimmerman, *Professor*

71-72. (VII). Unit Processes. The important inorganic and organic industrial chemical process from the point of view of the basic chemical reactions and physical operations involved. Mr. Zimmerman. Prereq.; Chem. 22. 2 lec.; 2 cr.

74-75. (V). Unit Operations. The theory and practice of the fundamental chemical engineering unit operations, including flow of liquids, flow of heat, evaporation, distillation, drying filtration, gas absorption, extraction, humidification and air conditioning, crystallization, crushing and grinding, and size separation. Mr. Zimmerman. Prereq.: Ch. E. 71, Chem. 83. 3 lec.; 3 cr.

76. (XIII). Chemical Engineering Economics. The economic factors involved in industrial chemical processes and the application of economic bal-

ances to the design and selection of chemical engineering equipment. Mr. Zimmerman. Prereq.: Ch. E. 75, 77. 3 lec.; 3 cr.

77. (III). Unit Operations Laboratory. Experiments based upon the unit operations are performed on typical chemical engineering equipment. Mr. Zimmerman. Prereq.: Ch. E. 74 and Chem. 84. 3 lab.; 3 cr.

78. (III). Chemical Plant Design. The design and layout of chemical plants and equipment. The assigned problems are of a practical nature, such as the manufacture of some chemical product, and their solution will include the design or selection of all equipment and drawings of equipment, plant, and layout. Mr. Zimmerman. Prereq.: Ch. E. 75, 77. 3 lab.; 3 cr.

79. (XIII). Chemical Engineering Thermodynamics. A study of the fundamental laws of energy and their application to chemical engineering problems. Mr. Zimmerman. Prereq.: Chem. 84 and Ch. E. 74. 2 lec.; 1 rec.; 3 cr.

80. (0). Chemical Engineering Project. Each student selects a research problem which he carries out independently under Faculty supervision. Intensive study in both the library and the laboratory and a satisfactory thesis at the completion of the work are required. Mr. Zimmerman. Prereq.: Ch. E. 75, 77. 5 lab.; 5 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

CHEMISTRY

Harold A. Iddles, *Professor*; Albert F. Daggett, *Professor;* Melvin M. Smith, *Associate Professor Emeritus;* James A. Funkhouser, *Professor;* Edward R. Atkinson, *Associate Professor;* Helmut M. Haendler, *Associate Professor;* Henry G. Kuivila, *Assistant Professor;* J. Kenneth O'Loane, *Assistant Professor;* Ben Millard, *Assistant Professor;* Charles M. Wheeler, *Assistant Professor;* Heman C. Fogg, *Demonstrator;* Albert K. Sawyer, *Instructor;* George Galanes, *Instructor;* Richard O. Adams, *Instructor;* William S. Becker, *Instructor;* Howard C. Daly, *Instructor;* Leo A. Rheaume, *Instructor;* Raymond P. Vigneault, *Instructor.*

1-2 (IV). General Chemistry. A broad course in elementary Chemistry with many lecture demonstrations and some laboratory practice. Topics of interest to the professional student and of general interest are presented. For Liberal Arts and Agriculture students. Messrs. Daly, Galanes and assistants. 2 lec.; 1 rec.; 1 lab.; 4 cr.

3-4. (IV). General Chemistry. The fundamental laws and conceptions of Chemistry, including a study of the non-metals and metals and their compounds. The theoretical principles are illustrated by many lecture demonstrations, and the applications of Chemistry in the professions are explained. Messrs. Iddles, Funkhouser, Wheeler, Sawyer and assistants. For students who plan to take further courses in the Department of Chemistry. 2 lec.; 1 rec.; 1 lab.; 4 cr.

6. (IV). Inorganic Chemistry. A continuation of Chemistry 3 covering the fundamental laws and conceptions of Chemistry involved in a study of the

non-metals and metals, and their compounds. Mr. Iddles, and assistants. Prereq.; Chem. 3, Math. 11, 13, and permission of instructor. 2 lec.; 1 rec.; 3 lab.; 6 cr.

11-12. (0). SURVEY OF CHEMISTRY. Lectures and demonstrations on general Chemistry, designed for the pursuit of Chemistry as an element of general culture rather than as professional training, and for knowledge of the spirit of a branch of science on which much of our present-day civilization is based. Textbook: Findlay, The Spirit of Chemistry. Mr. Iddles. Elective for Sophomore, Junior, and Senior students. 3 lec.; 3 cr.

21 (XIII). SEMI-MICRO QUALITATIVE ANALYSIS. The fundamental theories of solutions as applied to the reactions of qualitative analysis. Problem work is required. The laboratory work uses the semi-micro technique and provides ample experience in the analysis of simple and complex mixtures. For Chemistry majors. Mr. Haendler and assistant. Prereq.: Chem. 4 or 6. 2 lec.; 2 lab.; 4 cr.

22. (XIII). QUANTITATIVE ANALYSIS. The theory and laboratory technique of the more common determinations of gravimetric and volumetric analysis. Emphasis on the solution of problems. A comprehensive study of the more common analytical methods. Mr. Millard and assistants. Prereq.: Chem. 21. 2 lec.; 3 lab.; 5 cr.

25, 26. (XIII). INTRODUCTORY QUANTITATIVE AND QUALITATIVE ANALYSIS. First semester: The theory, problems, and technique involved in some of the common procedures in both gravimetric and volumetric quantitative methods. Second semester: The theory and problems of qualitative analysis. The laboratory work is conducted on a semi-micro scale and prevents the special methods of technique involved. For pre-medical students, as a preparation for various sciences, and as a preparation for secondary-school teaching. Messrs. Haendler, Millard, and assistants. Prereq.: Chem. 4. 2 lec.; 2 lab.; 4 cr.

31. (I). TECHNICAL QUANTITATIVE ANALYSIS. The laboratory portion provides sufficient experience to develop the skill and special technique necessary for the analysis of alloys, gaseous, liquid, and solid fuels, gas mixtures, oils, and lubricants. The lectures interpret the results of technical analyses. Mr. Millard. Prereq.: Chem. 22. 1 lec.; 2 lab.; 3 cr.

33. (I). STOICHIOMETRY. The calculation of heat and material balances in industrial processes. Mr. Daggett. Prereq.: Chem. 22. 2 lec.; 2 cr.

45. (45). (V). ORGANIC CHEMISTRY. An introductory but comprehensive study of the chemistry of carbon compounds with emphasis on the particular phases of the subject needed by students preparing to be technicians, nurses, majors in Biological Sciences, and others, where a brief course is desired. Mr. Adams. Prereq.: Chem. 3-4. (Elective for medical technicians, nurses, majors in Biology, pre-dental students.) 3 lec.; 2 lab.; 5 cr.

51-52. (IV). ORGANIC CHEMISTRY. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with emphasis on class rections and structural theory. Laboratory exercises in the preparation and purification of selected organic compounds. Mr. Funkhouser and assistants. Prereq.: Junior standing; Chem. 25-26 or concurrently. 3 lec.; 2 lab.; 5 cr.

53-54. (IV). ORGANIC CHEMISTRY. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with amphasis on class reactions and structural theory. Laboratory exercises in the preparation and purification of selected organic compounds; also the use of group reactions for the identification of organic substances in a systematic scheme of qualitative organic analysis. Mr. Iddles and assistants. Prereq.: Chem. 22. 3 lec.; 2 lab.; 5 cr.

55, 56. (XV). STRUCTURAL AND THEORETICAL PROBLEMS OF MODERN ORGANIC CHEMISTRY. An intensive review of the methods of preparation and reactions of the principal classes of organic compounds. Emphasis is on the working of assigned problems. The electron theory of Organic Chemistry is used to correlate the chemical behavior of unsaturated compounds, free radicals, and other classes. Mr. Atkinson. Prereq.: Chem. 52 or 54. 3 lec.; 3 cr.

62. (I). INSTRUMENTAL ANALYSIS. The theory and technique of special and recently developed methods of analysis such as colorimetry, turbidimetry, potentiometry, and spectography. Sufficient experience is obtained to allow the development of considerable skill in even the more complex methods. Mr. Millard. Prereq.: Chem. 22. 2 lec.; 2 lab.; 4 cr.

82. (--). INTRODUCTORY PHYSICAL CHEMISTRY. Kinetic theory of gases; quantitative laws for behavior of matter in the gas, liquid, and solid phases; valence and the chemical bond; radioactivity; atomic structure and valence; laws of solutions; homogeneous and heterogenous equilibrium; colloids; electrochemistry. Designed for pre-medical and biology students. Mr. O'Loane. Prereq.: Chem. 25-26, Phys. 2, Math. 2 or 11 and 13. 3 lec.; 1 lab.; 4 cr.

83-84. (V). ELEMENTARY PHYSICAL CHEMISTRY. The properties of gases, liquids, and solids; thermochemistry and thermodynamics; solutions, chemical equilibria, reaction rates, conductance and electromotive force. Mr. O'Loane. Prereq.: Chem. 22, Math. 18, Phys. 22. 3 lec.; 2 lab., 5 cr.

85, 86. (V). ADVANCED PHYSICAL CHEMISTRY. A review of selected topics in elementary Physical Chemistry followed by a study of the structure and properties of matter. Mr. Wheeler. Prereq.: Chem. 84 or equivalent. 3 lec.; 3 cr.

87, 88. (0). CHEMICAL LITERATURE AND SEMINAR. Use of the Chemical Library; student reports on topics of interest. Mr. Atkinson. Prereq.: Chem. 62 and Chem 54. 1 lec.; 1 cr.

89-90. (0). THESIS. A thesis covering the related background and experimental observations of the year's investigation in some selected subject is required. Members of the staff. For Seniors in Chemistry, who have completed Chem. 54, 62, and 84 and have a grade point average above 2.5. 5 lab.; 5 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

CIVIL ENGINEERING

Edmond W. Bowler, *Professor;* Russell R. Skelton, *Professor;* Charles O. Dawson, *Associate Professor;* Keith B Macpherson, *Instructor.*

2. (XX). Surveying. The theory and use of surveying instruments and methods, including measurements of angles, direction and distance, differential leveling, land surveyiing, note keeping and calculations and plotting relating to traverse. Mr. MacPherson. Prereq.: Math. 13. 1 rec.; 1 lab.; 2 cr.

3-4. (XIV). Surveying. The theory and use of surveying instruments and methods on plane, precise, and topographic surveys, including: the use and adjustment of tapes, transits, levels, and plane tables, topographic mapping, solution of miscellaneous problems in topographic surveying, highway aand railway curves, observations and reduction of observations on the sun and Polaris for latitude, time, and direction, profile leveling, city surveying, base line measurements, triangulation, and mapping programs in the United States. Some time is spent in the practice of the execution of topographic symbols and lettering. A topographic survey of a small area is completed in the field by the transit and stadia method and a map of the same area is plotted in the drafting room. A topographic map of a small area is also made by the plane table method. Mr. MacPherson. Prereq.: C. E. 3: 3 rec.; 3 lab.; 6 cr. C. E. 4: 1 rec.; 2 lab.; 3 cr.

6. (XXI). Route Surveying. Theory and practice relating to preliminary and final location surveys for highways, railways, and pipe lines. Theory and problems in earthwork, the mass diagram, grade lines, vertical curves, cross sectioning and slope stakes. Mr. Skelton. Prereq.: C. E. 4 either in parallel or as a prerequisite. 1 rec.; 2 lab.; 3 cr.

7 (7) (XVI). Surveying. The theory and uses of tape, level, transit, plane table and stadia in making plane and topographic surveys. Computations and drafting exercises necessary for making maps, surveys, and maps for all purposes. Prereq.: By permission of the instructor. Mr. Dawson and Mr. MacPherson. 2 rec.; 1 lab.; 3 cr.

11. (III). Surveying. Topography surveys, determination of earthwork quantities, location of structures, layout of buildings before and during construction, and other special surveying problems pertaining to building construction. Mr. Dawson. Prereq.: C. E. 2. 1 lec. or rec.; 2 lab.; 3 cr.

15. (VII). Engineering Materials. Methods of manufacture, physical properties, and the application of the various materials used in engineering works, including timber, steel, stone, brick, cement, concrete, and bituminous materials. Laboratory experiments and reports on the testing of cements, aggregates, and concrete specimens. Mr. Skelton. Prereq.: M.E. 9 either in parellel or as a prerequisite. 2 rce.; 1 lab.; 3 cr.

23, (23). (XVII). Fluid Mechanics. Properties of fluids; statics of fluids; theorems and criteria of fluid motion; fluid flow through orifices, tubes, nozzles and pipes; flow over weirs; flow in open channels; dynamics of fluids in motion. Mr. Dawson. Prereq.: M.E. 7 or 9 and Math. 18. 3 rec.; 3 cr.

27-28. (I). Theory of Structures. The graphical and analytical methods of determining reactions, moments and shears in beams, girders and trusses under fixed and moving loads, and the stresses in various structures including simple, subdivided and mutiple trusses, portals, viaducts, cantilevers, and three-hinged arches. The computation of deflections and the application of the method of least work to statically indeterminate structures. Mr. Bowler. Prereq.: Math. 18, and M.E. 9 and 10 as prerequisites or in parallel. 3 rec.; 1 lab.; 4 cr.

31. (XIX). Community Planning. An introduction to the subject of Community Planning, especially designed for those students having a major interest in Civil Engineering or Building Construction, having the following purposes: (1) to acquaint the student with planning programs and processes, (2) to study the content and extent of desirable planning programs, (3) to indicate to the engineer, his place in the preparation and execution of a planning program. For Seniors. Elective by permission of the instructor. Mr. Dawson. 3 lec. or rec.; 3 cr.

41, 42, 43, 44. Student Chapter of the American Society of Civil Engineers. Junior and Senior students in Civil Engineering are required to join the student chapter of the American Society of Civil Engineers. In addition to its ordinary life under the guidance of student officers, the chapter meets once a week under the direction of an instructor, when prepared addresses by the student members are presented. Mr. Dawson. ½ credit. Students passing this course will receive a grade of Cr.

52. (XV). Fluid Mechanics. Properties of fluids; statics of fluids: theorems and criteria of fluid motion: fluid flow through orifices, tubes, nozzles and pipes; flow over weirs; flow in open channels; dynamics of fluids in motion. Laboratory exercises and steam gaging practice. Mr. Dawson. Prereq.: Math. 18. 3 rec.; 1 lab.; 4 cr.

61. (XI). Highway Engineering. The economics of location and design of highways and city streets; methods of construction, maintenance, and specifications governing the various types of surface. The administration and methods of financing of highway systems. Selected problems of location and design are studied in the laboratory. Mr. Skelton. Prereq.: C.E. 6 and 15. 2 rec.; 2 lab.; 4 cr.

62. (XI). Soil Mechanics and Foundations. The principles underlying the behavior of various soils when subjected to structural loads. Problems and methods encountered in foundation design and construction, building codes and legal aspects of foundation construction, also test borings and other underground exploration methods. Mr. Skelton. Prereq.: C.E. 65. 2 lec.; 1 lab.; 3 cr.

63-64. (V). Hydraulic and Sanitary Engineering. Precipitation, water losses, run-off, drainage areas, steam flow, water power estimates, hydraulic turbines, dams and waterways; the sources, quantity, quality, and sanitary aspects of public water supplies; the methods of purification and distributing systems; the theory and problems of sewage, the principles of governing the disposal of sewage and the various methods of sewage treatment. Mr. Bowler. Prereq.: C.E. 52, C.E. 62: 3 rec.; 1 lab.; 4 cr.; C.E. 64: 3 rec.; 2 lab.; 5 cr.

65. (XV). Structural Design. Theory and problems relating to the analysis and design of steel and timber structures. Typical design problems

include the plate girder, mill bent, bridge trusses, and selected parts of building frames. Economy of design and the interpretation of various specifications are emphasized. Mr. Skelton. Prereq.: C.E. 28. 2 rec.; 2 lab.; 4 cr.

66. (VIII). Reinforced Concrete Structures. Theory and design of reinforced concrete structures, such as beams, slabs, columns, footings, retaining walls, and small bridges. Mr. Skelton. Prereq.: C.E. 65. 2 rec.; 2 lab.; 4 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

DAIRY HUSBANDRY

Kenneth S. Morrow, *Professor;* Harry A. Keener, *Professor;*
Herbert C. Moore, *Associate Professor.*

6. (V). Fundamentals of Dairying. A general survey of the dairy industry; the composition and properties of milk and other dairy products, dairy manufacturing processes, market milk, the selection and judging of dairy cattle. Mr. Morrow, Mr. Moore. 2 lec.; 1 lab.; 3 cr.

23. (XIX). Dairy Cattle. Purebred dairy cattle; breed history; pedigrees; family lines and methods of outstanding breeders; the application of the principles of genetics to the improvement of dairy cattle; herd analysis. Mr. Morrow. 2 lec.; 1 lab.; 3 cr.

27. (VII). Butter and Cheese. (1) The secretion and the chemical and physical properties of milk; pasteurization; cream ripening; starters; churning; organization and operation of factories. (2) The manufacturing and marketing of more important types of cheese. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

29. (0). Domestic Dairying. Nutritive value of milk and milk products. Laboratory exercises in the manufacture of dairy products. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

30. (VII). Dairy Bacteriology. The application of bacteriological principles to the production and processing of milk and other dairy products. Mr. Moore. 2 lec.; 2 lab.; 4 cr.

33 (XX). Dairy Products Judging. The various standards and grades of dairy products, with practice in judging milk, butter, cheese, and ice cream. Mr. Moore. 1 lab.; 1 cr.

34. (XX). Dairy Cattle Judging. Comparative judging of dairy cattle, using animals in the University herd and in nearby herds. 1 lab.; 1 cr.

36. (0). Advanced Dairy Cattle Judging. Continuation of Dairy Husbandry 33, 34. Emphasis on training for participation on dairy cattle judging teams. Mr. Morrow. Prereq.: D. H. 34. 1 lab.: 1 cr.

60. (0). Dairy Seminar. A study of Agricultural Experiment Station and other literature covering recent research in the various phases of dairying. Dairy Husbandry Staff. 2 lec.; 2 cr.

62. (XV). ADVANCE DAIRY SCIENCE. Basic data, fundamental observations, and discussions of research contributing to the present status of the dairy industry. Mr. Moore. 2 lec.; 2 cr.

64. (XIX). MILK PRODUCTION. Feeding and management of dairy animals; calf feeding; raising young stock; feeding for economical milk production. Mr. Keener. 2 lec.; 1 lab.; 3 cr.

65. (XV). MARKET MILK. The producing, handling, and distribution of market and certified milk; dairy farm inspection; control of milk supply. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

66. (XIII). ICE CREAM. The making, handling, and marketiing of ice cream and ices. Mr. Moore. 2 lec.; 1 lab.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

ECONOMICS AND BUSINESS ADMINISTRATION

JOHN A. HOGAN, *Associate Professor;* ARTHUR W. JOHNSON, *Professor;* JOSEPH E. SHAFER, *Professor;* RUTH J. WOODRUFF, *Associate Professor;* CARROLL M. DEGLER, *Associate Professor;* DORIS E. TYRRELL, *Associate Professor;* JOHN D. HAUSLEIN, *Assistant Professor;* BENJAMIN J. KATZ, *Assistant Professor;* MYRA L. DAVIS, *Assistant Professor;* JOHN KORBEL, *Assistant Professor;* RICHARD L. SMALL, *Lecturer;* CARLOS F. WEIMAN, *Lecturer.*

BUSINESS ADMINISTRATION

Note — Students who have completed two or more years of bookkeeping in preparatory school will be permitted to register for B. Ad. 3-4, *Intermediate Accounting*, upon passing, without academic credit, an examination covering the material of B. Ad. 1-2.

Schedule the following courses as B. Ad. 1, etc.

1-2. (XVI). PRINCIPLES OF ACCOUNTING. The fundamentals of Accounting. Theory of debit and credit; functions and classifications of accounts; modern accounting records including special and columnar books. Adjusting entries, work sheets, and financial statements. Single proprietorships, partnerships, and an introduction to corporations. Mr. Hauslein. 2 lec. or rec.; 2 lab.; 4 cr.

3-4. (XVI). INTERMEDIATE ACCOUNTING. Comprehensive study of Corporation Accounting, principles and objectives of valuation, consignments, installment selling, depreciation and depletion, funds and reserves, application of funds, and analysis of financial statements. Mr. Johnson. Prereq.: B.Ad. 2. 2 lec. or rec.; 1 lab.; 3 cr.

7-8. (XV). COST ACCOUNTING. The relation of Cost Accounting to general Accounting. The place of Cost Accounting in modern business. Types of cost systems and their application to particular lines of business. Careful analysis of methods of computing costs. Principles of cost control. Mr. Johnson. Prereq.: B.Ad. 2. 2 lec. or rec.; 1 lab. 3 cr.

9-10. (XIII). HOTEL ACCOUNTING. Theory and practice of keeping accounting and financial records for hotels. Mr. Hauslein. Prereq.. B.Ad. 1-2. 2 lec.; 1 lab.; 3 cr.

21-22. (XIV). COMMERCIAL LAW. The law of contracts, agency, sales, negotiable instruments, partnerships, and corporations. *Not open to Freshmen.* 3 lec. or rec.; 3 cr.

23. (XVIII). BUSINESS COMMUNICATION. Report writing, including preparation of charts, forms, and graphs. Methods of intra-office. inter-office and inter-business communication. Preparation of instruction data for employees, minutes of meetings and manuals of company practices and procedures. Business letters of various types. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

24. (XIII). INTRODUCTION TO BUSINESS. The course is designed to acquaint the student with general business problems and procedures and to provide an introduction to advanced courses. Required of students electing the Secretarial Curriculum. Mr. Korbel. 3 lec. or rec.; 3 cr.

34. (X). BUSINESS MANAGEMENT. Fundamental principles and techniques of successful organization. management and operation of business activities. Mr. Small. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

45. (VIII). PRINCIPLES OF SELLING. Principles and methods used by commercial and industrial concerns in selling to the ultimate consumer. Consideration of principles employed in personal selling both in retail establishments and elsewhere. Mr. Small. Prereq.: Junior or Senior standing or permission of the instructor. 3 lec. or rec.; 3 cr.

46. (XIII). PRINCIPLES OF RETAILING. Methods and principles of operating chain, department, specialty, and unit stores. Consideration of retail location, store layout and merchandise classification, sales and service policies, pricing, buying, and organization. Mr. Korbel. Prereq.: Econ. 24 or 25. 3 lec. or rec.; 3 cr.

47. (XXI). PRINCIPLES OF ADVERTISING. Principles and methods underlying the preparation, use and evaluation of advertising. Various types of media such as newspapers, magazines, and radio critically considered. Mr. Korbel. Prereq.: Econ. 24 or 25. 3 lec. or rec.; 3 cr.

48. (XII). SALES MANAGEMENT. Principles of successful sales management; their application; mechandising; sales promotion; building a sales organization; advertising's place in sales management; sales policies, costs and controls; selection, development, and training of sales staffs. Mr. Small. Prereq.: Junior or Senior standing. 3 lec. or rec.; 3 cr.

52. (XIII). MARKET ANALYSIS AND RESEARCH. The nature, procedures, and applications of market research in business. Determination of sales quotas, market potentialities and the measurement of replacement demand. Mr. Korbel. Prereq.: Econ. 24 or 25. 3 lec. or rec.; 3 cr.

55. (I). ADVANCED ACCOUNTING. Advanced theory of Accounting, corporate consolidations, insolvencies, realization and liquidation problems, estate accounting. Mr. Johnson. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 1 lab.; 3 cr.

56. (I). FEDERAL TAX ACCOUNTING. The Federal Income Tax Laws and accounting procedure in connection therewith. Social security taxes, estate and gift taxes. Mr. Johnson. Prereq.: B.Ad. 4, or permission of the instructor. 2 lec. or rec.; 1 lab.; 3 cr.

57. (IX). AUDITING. Study of procedure and practice in the verification of records, analysis of accounts and the presentation of conclusions. Attention is given to the responsibilities of the auditor and the procedure and practice of preparing reports. Mr. Johnson. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-52.)

59. (IX). ACCOUNTING SYSTEMS. Study of underlying principles of building accounting systems. Designing of systems for various types of business enterprises. Mr. Johnson. Prereq.: B.Ad. 4 or equivalent. 2 lec. or rec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-52.) *Formerly B.Ad. 58.)*

68. (VI). PERSONNEL ADMINISTRATION. A study of methods, techniques, and psychology employed in personnel administration from the standpoint of the executive. The case study method is used. Mr. Hogan. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

70. (IX). GENERAL INSURANCE. The field of Insurance; social value; physical and moral hazards; risk, its nature and economic significance; reinsurance; types of insurance coverages; fire, casualty, life, social. Fidelity and surety bonds. Mr. Johnson. Open to Juniors and Seniors or by permission of the instructor. 3 lec. or rec.; 3 cr.

SECRETARIAL STUDIES

Schedule the following courses as Sec. St. 1, etc.

1-2. (VIII). SHORTHAND. Principles of Gregg shorthand with practice in transcribing from shorthand plates and class notes. Sec. St. 7-8 must either be taken in conjunction with this course or precede it. Miss Tyrrell. 5 rec.; 3 cr.

3-4. (II). ADVANCED SHORTHAND. A review of fundamental principles, the building of shorthand vocabulary, practice in taking dictation at increasing rates of speed, and practice in developing skill and speed in transcription. Miss Tyrrell. Prereq.: Sec. St. 2, or equivalent. 5 rec.; 3 cr.

5. (5). (0). PERSONAL USE TYPEWRITING. Practice in acquiring correct typing techniques, arranging outlines, notes, themes, bibliographies, and simple tabulations. Open to any student who does not know how to typewrite. 5 lab.; 1 cr.

7-8. (VII). TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. Miss Davis. 5 lab.; 2 cr. *(See Sec. St. 27.)*

9-10. (XXI). ADVANCED TYPEWRITING. Practice in tabulating and in writing business letters, legal papers, and various business forms; and practice in transcribing shorthand notes. Miss Davis. Prereq.: Sec. St. 8 or the equivalent. 5 lab.; 2 cr.

11. (XV). FILING. Various alphabetic, numeric, and geographic subject-matter systems of correspondence filing; cross reference; follow-up methods; filing supplies and equipment; practice in filing. Miss Davis. Prereq.: Sec. St. 7. 3 rec. or lec.; 2 cr.

13. (X). OFFICE MACHINES. Duplicating methods; practice in typing master copies and stencils, and in operating a gelatin duplicator, a mimeograph, and a mimeoscope; practice in machine transcription; and an introduction to adding and calculating machines. Miss Davis. Prereq.: Sec. St. 8. 5 lab.; 2 cr.

17-18. (V)-(0). SECRETARIAL OFFICE PROCEDURE AND PRACTICE. First semester, discussion of Secretarial duties and traits; problems in the discharge of various duties; and problems in office management. Second semester, 144 hours of practice Secretarial work in business offices. Miss Tyrrell. This course must be taken in conjunction with Sec. St. 3-4 and Sec. St. 9-10, or following these courses. 3 rec.; 3 cr.

22. (0). ADVANCED DICTATION. Speed building in dictation and transcription. Miss Tyrrell. Prereq.: Sec. St. 4. 3 rec.; 3 cr.

23-24. (XI). BUSINESS WRITING. Practice in writing various types of business letters and reports; proofreading; editing. Miss Tyrrell. 3 lec. or rec.; 3 cr.

27. (VII). TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations, and simple manuscripts. This course is to be taken instead of Sec. St. 7 by Secretarial students who have had Sec. St. 5 or the equivalent. Miss Davis. 5 lab.; 1 cr.

ECONOMICS

Schedule the following courses as Econ. 1, etc.

1-2. (XVIII). PRINCIPLES OF ECONOMICS. The fundamental principles which explain the organization and operation of the economic system. Mr. Degler and Mr. Katz. *Not open to Freshmen.* 3 lec. or rec.; 3 cr.

3. (XX). ECONOMIC AND COMMERCIAL DEVELOPMENT OF THE UNITED STATES. Miss Woodruff. 3 lec. or rec.; 3 cr.

ECONOMIC GEOGRAPHY. (See Geog. 4.)

5. (--). ECONOMIC AND COMMERCIAL DEVELOPMENT OF EUROPE. *Not open to Freshmen.* 3 lec. or rec.; 3 cr. (Not offered in 1951-52.)

10. (IX). TRANSPORTATION. Development and organization of transportation agencies. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

25. (VIII). MARKETING. The economics of the marketing functions, agencies, and special problems of marketing. Mr. Korbel. Prereq.: Econ. 2. (May be taken concurrently.) 3 lec. or rec.; 3 cr. *(Formerly Econ. 24).*

31, (31). (III). ECONOMIC AND BUSINESS STATISTICS. The collection, analysis, interpretation, and presentation of statistical data as applied to economic and business problems. Frequency distribution, index numbers, time series, simple correlations. Emphasis is upon the interpretation and use of statistics. Required of all students majoring in Economics and in the Business Curriculums. Prereq.: Econ. 2. 2 lec. or rec.; 1 lab.; 3 cr.

51. (IV). Labor Economics. Historical background and present status of labor organizations and problems. Labor-management relations and collective bargaining; economics of wages and employment; case studies. Mr. Hogan. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

52. (I). Public Finance. Theory and practice of public expenditures and collection of public revenues; problems and policies in financial administration, national, state, and local; taxation problems in the State of New Hampshire. Mr. Katz. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

53. (II). Money and Banking. Theory and practice of money and banking. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

54. (XIII). Advanced Money and Banking. Advanced monetary theory and some of the more practical aspects of modern banking. Mr. Degler. Prereq.: Econ. 53 and permission of the instructor. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

55. (V). Corporations. Development and forms of business organization and combination. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

56. (II). Corporation Finance. Methods of financing corporate enterprise. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

58. (--). Principles of Investment. The general principles of investment. The problem of investment, investment characteristics of stocks and bonds; public utility, railroad, industrial, and government securities; protection of the investment banking; and related problems. Mr. Degler. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

61. (XV). Labor Law. Principles of labor law and legislation. Prereq.: Econ. 2 or Govt. 2. 3 lec. or rec.; 3 cr. *(Formerly Govt. 61.)*

63. (XX). International Trade and Finance. Theory of international trade, foreign exchange, balance of international payments, tariffs and protection; the economic aspects of international relations, with particular reference to recent policies. Miss Woodruff. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

64. (XX). Comparative Study of Economic Systems. An examination of socialism, communism, capitalism, and modification of these types, particularly as exemplified by leading nations. Miss Woodruff. Prereq.: Econ. 2 or permission of the instructor. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

74. (III). The Economics of Contemporary American Business. The nature and theory of business profits and their effect on the various segments of the economy. Mr. Shafer. Prereq.: Econ. 2 and permission of the instructor. 3 lec. or rec.; 3 cr.

76. (IX). Value and Distribution. An advanced course in economic theory. Emphasis is upon theory of price and the distribution of income. Prereq.: Econ. 2. 3 lec. or rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

EDUCATION

THOMAS O. MARSHALL, *Professor;* A. MONROE STOWE, *Research Professor;* EVERETT B. SACKETT, *Professor;* HARLAN M. BISBEE, *Associate Professor Emeritus;* WAYNE S. KOCH, *Associate Professor;* HOWARD S. BRETSCH, *Associate Professor;* AUSTIN L. OLNEY, *Assistant Professor;* CARLETON P. MENGE, *Assistant Professor;* WILLIAM W. LYNCH, JR., *Instructor.*
HERBERT A. CARROLL, *Professor (Educational Psychology);* HELEN F. McLAUGHLIN, *Professor (Home Economics-Education);* CARL LUNDHOLM, *Professor (Physical Education);* GEORGE R. THOMAS, *Professor (Art-Education);* PHILIP S. BARTON, *Professor (Agricultural Education);* PAUL E. SCHAEFER, *Assistant Dean;* MARION C. BECKWITH, *Associate Professor (Physical Education);* JOHN S. WALSH, *Associate Professor (Latin-Education);* DORIS E. TYRRELL, *Associate Professor (Secretarial Studies-Education);* GEORGE M. HASLERUD, *Associate Professor (Educational Psychology);* DAVID F. LONG, *Associate Professor (History-Education);* DONALD M. PERKINS, *Assistant Professor (Mathematics-Education);* ERNEST A. BOULAY, *Assistant Professor (Language-Education);* LEWIS C. GOFFE, *Instructor (English-Education);* BARBARA K. NEWMAN, *Instructor (Physical-Education);* JOSEPH L. DAVIS, *Instructor (Music-Education);* HARLAN E. ATHERTON, RAYMOND I. BEAL, JOHN M. COTTON, EDWARD W. CRAWFORD, L. MUNRO GRANDY, CARL P. JAMES, IRENE W. WIGHT, *Consultants in Teacher Education.*

Supervising Teachers, 1950-51

Catherine F. Barron
Mary Brown
Doris S. Buswell
Nina E. Clark
Barbara Counsell
Marion Diemond
Irene Kidder
Roland B. Kimball
Margaret McGinnis
Charles L. Meloon
Benjamin W. Mooney
Edith S. Morrill
Bertha Pellerin
Mary C. Reilly
Charles E. Robitaille
Lorrain E. Ryder
Marion G. Sanders
John R. Sawyer

COURSES IN EDUCATION

41, (XIV), (41), (XI). PRINCIPLES OF EDUCATIONAL PSYCHOLOGY. A study of such principles of behavior as are of service to teachers in their efforts to influence intelligently the intellectual, emotional, social, and personality development of their pupils. Mr. Menge and Mr. Lynch. Open to Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

(42), (XI), 42. (XIV). EDUCATIONAL PSYCHOLOGY OF ADOLESCENCE. The purpose of this course is to help students to acquire an appreciative understanding of adolescents and their educational needs, and of the most effective way of meeting those needs. Mr. Menge and Mr. Lynch. Open to Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

(52), 52. (XVII). PRINCIPLES OF AMERICAN SECONDARY EDUCATION. The development and place of the secondary school in the American system of education; aims and functions of secondary education; articulation with lower and higher educational institutions, and with the community; the secondary-school pupil; adjustment of the work of the school to meet individual needs; the offerings, both curricular and extra-curricular, of the secondary school; place and relationship of school board, superintendent, headmaster, and teachers. Mr. Marshall. Open to Juniors, Seniors, and Graduate students. 3 rec.; 3 cr.

61, (61). (0). PRINCIPLES AND PROBLEMS OF TEACHING IN THE SECONDARY SCHOOL. (1) Secondary-school objectives and the objectives in the teaching of secondary-school subjects; (2) principles of teaching and of directing learning incorporated in teaching which meets the needs of high-school students and attains the objectives of the secondary school; (3) secondary-school tests and the ways in which teachers are endeavoring to ascertain the extent to which their objectives are being attained; (4) class management, the purpose of which is to insure conditions favorable to the attainment of the objectives of the secondary school. Mr. Koch and Mr. Menge. Prereq.: Ed. 41 and 42, **required tests for teaching selection*, and permission of the instructor. 3 rec.; 1 two-hour lab.; 4 cr.

63. (0). AUDIO-VISUAL AIDS IN THE ELEMENTARY AND SECONDARY SCHOOLS. A course intended to give teachers a practical working knowledge of the use of the various types of Audio-Visual aids. The following aids will receive particular attention: The School Journey; The School Museum; Silent and Sound Films and Projectors, Strip Films and Projectors, with and without sound disc; Transcriptions and Radio Broadcasts. This course will be centered around the problems which are common to the use of Audio-Visual aids in both elementary and secondary schools. Mr. Olney. Open to Juniors, Seniors, and Graduate Students. 3 cr.

65. (0) EDUCATIONAL TESTS AND MEASUREMENTS. A course emphasizing the interpretation of test results. Standardized tests of intelligence, special aptitudes, achievement, interests, and personality are discussed and demonstrated, and results analyzed. Mr. Marshall and Mr. Lynch. Prereq.: Psych. 1 or Ed. 41. 2 or 3 cr.

83. (0). EDUCATIONAL AND VOCATIONAL GUIDANCE. A first course on the principles and practices of guidance for teachers and administrators who are participating or planning to participate in a program of guidance, orientation, individual and group counseling, securing and recording information, a survey of present practices in schools. Mr. Menge. Prereq.: Educational Psychology. Open to Juniors, Seniors, and Graduate Students. 2 or 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

COURSES IN PROBLEMS IN THE TEACHING OF HIGH-SCHOOL SUBJECTS

The following courses are devoted to a study of problems, of objectives, selection, and organization of subject-matter, teaching and testing techniques, and classroom management in the teaching of the respective subjects. To be admitted into one of these courses the student must have completed, with a grade of at least C., Ed. 61† and, in addition, the courses in the subject and related subjects designated as prerequisite to the respective courses in this group. A student desiring to be considered for Supervised Teaching must complete with a grade of at least C one of these courses in the subject in which he hopes to do supervised teaching.

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*These tests will normally be given during Orientation Week. Consult the Chairman of the Department of Education for the exact date.

†Except for Ag.-Ed. 91, 92, HE-Ed. 91, and P.E.-Ed. 91.

For details concerning prerequisites and nature of these courses, see descriptions given under respective subject-matter departments.

Agriculture-Education (Ag-Ed.) 91, 92. (0). Problems in the Teaching of High-School Agriculture. Mr. Barton. Open only to Juniors and Seniors in Agricultural Teacher Preparation. 2 lec. and 1 lab.; 3 cr.

Art-Education (Art-Ed) 91. (0). Problems of Teaching Art in Elementary Schools. 3 cr. Mr. Thomas.

Art-Education (Art-Ed) 92. (0). Problems of Teaching Art in Secondary Schools. 3 cr. Mr. Thomas.

Biology-Education (Bi-Ed) 91. (XI). Problems in the Teaching of High-School Biology. 3 cr.

English-Education (Engl.-Ed) 91. (XXI). Problems in the Teaching of High-School English. 3 cr. Mr. Goffe.

General Science-Education (GS-Ed) 91. (0). Problems in the Teaching of General Science. 3 cr.

History-Education (Hist-Ed) 91. (III). Problems in the Teaching of High-School History. 3 cr. Mr. Long.

Home Economics-Education (HE-Ed) 91. (IX). Problems in the Teaching of High-School Home Economics. 3 cr. Mrs. McLaughlin.

Language-Education (Lang-Ed.) 91. (VII). Problems in the Teaching of Foreign Languages in the High School. 3 cr. Mr. Boulay.

Mathematics-Education (Math-Ed.) 91. (0). Problems in the Teaching of High-School Mathematics. 3 cr. Mr. Perkins.

Physical Education (PE-Ed.) 91. (IX). Problems in the Teaching of Physical Education for Women. 3 cr. Miss Newman.

Psychology-Education (Psych-Ed.) 91. (0). Problems in the Teaching of High-School Psychology. 3 cr.

COURSES IN SUPERVISED TEACHING

This work is required in the Teacher Preparation Program. It is open only to students whose applications are approved by the Chairman of the Department of Education and the Co-ordinator of Student Teaching in the subject or subjects in which the applicant desires to do supervised teaching. *Applications should be filed in the office of the Department of Education, on or before November 15 of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least C the following courses in Education 41, 42, 52, and 61, and, with an average grade of C or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision. The applicant must also complete with a grade of at least C a course in the problems of teaching the subject in which he desires to do supervised teaching.*

EDUCATION

Students may be enrolled for from 6 to 12 credits of work in Supervised Teaching usually in the second semester of the academic year. Students registered in the College of Liberal Arts may count no more than 9 semester credits in Supervised Teaching toward the fulfillment of the major requirements in Education.

Education-Agriculture (Ed-Ag) 93. (0). Supervised Teaching in High-School Agriculture. Prereq.: Senior standing in Ag-Ed Curriculum.

Education-Art (Ed-Art) 94. (0). Supervised Teaching in Secondary—School Art. Prereq.: Art-Ed 92.

Education-Biology (Ed-Bi) 93, 94. (0). Supervised Teaching in High-School Biology. Prereq.: Bi-Ed 91.

Education-Commerce (Ed-Cs) 94. (0). Supervised Teaching in High-School Commercial Subjects.

Education-Economics (Ed-Econ) 94. (0). Supervised Teaching in High-School Economics. Prereq.: Hist-Ed 91.

Education-English (Ed-Engl) 94. (0). Supervised Teaching in High-School English. Prereq.: Engl-Ed 91.

Education-Language (Ed-Lang) 94. (0). Supervised Teaching in High-School Modern Foreign Language. Prereq.: Lang-Ed 91.

Education General Science (Ed-GS) 94. (0). Supervised Teaching in General Science. Prereq.: GS-Ed 91.

Education-History (Ed-Hist) 94. (0). Supervised Teaching in High-School History. Prereq.: Hist-Ed 91.

Education-Home Economics (Ed-HE) 94. (0). Supervised Teaching in High-School Home Economics. Prereq.: HE-Ed 91.

Education-Latin (Ed-Lat) 94. (0). Supervised Teaching in High-School Latin.

Education-Mathematics (Ed-Math) 94. (0). Supervised Teaching in High-School Mathematics. Prereq.: Math-Ed. 91.

Education-Music (Ed-Mus) 93, 94 (0). Supervised Teaching in Elementary and Secondary School Music.

Education-Physical Education (Ed-PE) 93. (93). (0). Directed Teaching in Physical Education.

Education-Physical Education (Ed-PE) 94. (0). Supervised Teaching of Physical Education in the Field.

Education-Sociology (Ed-Soc) 94. (0). Supervised Teaching in High-School Sociology. Prereq.: Hist-Ed 91.

ELECTRICAL ENGINEERING

Leon W. Hitchcock, *Professor;* William B. Nulsen, *Professor;* Alden L. Winn, *Assistant Professor;* Gilbert B. Gould, *Instructor;* John B. Hraba, *Instructor;* Albert J. Merlini, *Instructor;* Fletcher A. Blanchard, Jr., *Instructor.*

1-2. (VII). Electrical Engineering. Direct current circuits and machinery. Prereq.: Math. 16. Required of Sophomores in E.E. E.E. 1: 2 rec.; 1 lab.; 3 cr. E.E. 2: 3 rec.; 1 lab.; 4 cr.

3-4. (VIII). Electrical Engineering. Alternators, transformers, induction motors, regulators, synchronous motors, converters, and rectifiers. Prereq.: E.E. 2. Required of Juniors in E.E. 3 rec.; 3 cr.

5. (XI). Circuit Theory. Single phase and polyphase circuits, network theorems, and wave analysis. Prereq.: E.E. 2. Required of Juniors in E.E. 3 rec.; 3 cr.

6-7. (XIII). Electronics Fundamentals. Basic principles of electronics: thermionic emission, characteristics of vacuum tubes, rectifiers and power supplies, amplifiers, modulators, detectors, oscillators, gas-tube control circuits, and the use of laboratory instruments in determining circuit performance. (Formerly given as E.E. 14 and E.E. 57.) Prereq.: E.E. 5. E.E. 6 required of Juniors in E.E. and E.E. 7 required of Seniors in E.E. E.E. 6: 3 rec.; 1 lab.; 4 cr. E.E. 7: 3 rec.; 1 lab.; 4 cr.

12. (XIX). Illumination. Photometry, light sources, lighting applications, wiring methods and National Electrical Code Rules. Required of Seniors in E.E. Elective for students who have completed E.E. 33, or 38. 2 rec.; 2 cr.

15, 16, 17, 18. Student Branch of the American Institute of Electrical Engineers. A student organization conducted in accordance with the by-laws of the Institute with meetings given a place on the student's class schedule. Each student is required to present and discuss an approved subject. At times the meeting may take the form of a debate, an address by an outside lecturer, or a motion picture of an instructive nature. Students in this course must become student members of the A.I.E.E. or the I.R.E. and must subscribe to a magazine selected by the Department. Required of Juniors and Seniors in E.E. Elective for Freshmen and Sophomores majoring in E.E. 1 rec.; no cr.

23-24. (XII). Laboratory. Operation and test of direct and alternating current equipment; laboratory practice and report presentation. Prereq.: E.E. 2. Required of Juniors in E.E. 1 lab.; 2 cr.

25. (XIV). Laboratory. A continuation of E.E. 24. Prereq.: E.E. 24. Required of Seniors in E.E. 2 lab.; 4 cr.

31. (XX). Circuits and Appliances. Electric circuit theory, wiring methods, efficiency, protection of circuits and equipment, national electrical code, meters, motors, illumination, signal circuits, and telephones. Prereq.: Hotel Administration 21, 22 or Physics 2. 3 rec.; 1 lab.; 4 cr.

33, (33). (IX). Fundamentals of Electricity. Direct and alternating current circuits, machines, and equipment. Prereq.: Phys. 22. Required of Juniors in C.E. and Juniors in Chem. E. 3 rec.; 1 lab.; 4 cr.

37-38. (VI). ELECTRICAL MACHINERY. Direct and alternating current circuits, theory and characteristics of electric motors and generators, starting and control equipment. Prereq.: Phys. 22. Required of Juniors in E.E. 3 rec. 1 lab.; 4 cr.

45. (V). ELECTRIC ENGINEERING. Transmission line fundamentals, T and Pi sections, and filters. Prereq.: E.E. 5. Required of Seniors in E.E. 3 rec.; 3 cr.

51-52. (XVI). INDUSTRIAL ELECTRONICS FUNDAMENTALS. E.E. 51: Principles of electronics and applications to industrial control processes. E.E. 52: Study of operation and testing of selected electronic control systems. (Formerly E.E. 42). Prereq.: E.E. 33 or E.E. 37. Elective for students not registered in the Electrical Engineering Curriculum. 2 rec.; 1 lab.; 3 cr.

58. (XV). COMMUNICATION SYSTEMS. Analysis and design of the components of Communication Systems. Performance tests on receivers, transmitters, power amplifiers, and other elements of radio, telephone, television, carrier current, and speech amplifying systems. Prereq.: E.E. 7. Elective for Seniors in Electrical Engineering with permission of the Department. 3 rec.; 1 lab.; 4 cr.

60. (XIII). ADVANCED CIRCUIT THEORY. Steady state and transient analysis, derivation of fundamental formulas and constants. Prereq.: E.E. 45. Elective for Seniors in E.E. 3 rec.; 1 conference period; 4 cr.

70. (XVII). ADVANCED ELECTRONICS LABORATORY. Problems in design, analysis, construction, and testing, to be selected by the student. Permission to take this course will be given only upon acceptance and approval of an outline of the nature and extent of the work to be done submitted by the prospective student. Prereq.: E.E. 7. Elective for Seniors with permission of the Department. 1-2 lab.; 1 conference period; 2 to 4 cr.

76. (XVII). LABORATORY. Advanced laboratory testing and special problems. The student works on problems of his own selection which have been outlined by him and have received approval. This may be in the form of a semester thesis, or a series of original experiments. Prereq.: E.E. 25. Elective for selected Seniors in E.E. 4 lab.; 4 cr.

78. (V). INDUSTRIAL ELECTRONICS. Analysis and design of the electronic components used in industrial processes. Performance tests on selected electronic apparatus such as motor controls, synchronizers, voltage regulators, induction and dielectric heating equipment, etc. Introduction to servo mechanisms and synchros. Prereq.: E.E. 7. Elective for Seniors in Electrical Engineering with permission of the Department. 3 rec.; 1 lab.; 4 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

ENGLISH

SYLVESTER H. BINGHAM, *Professor;* HAROLD H. SCUDDER, *Professor Emeritus;* WILLIAM G. HENNESSY, *Professor;* CARROLL S. TOWLE, *Professor;* LUCINDA P. SMITH, *Associate Professor Emeritus;* EDMUND A. CORTEZ, *Associate Professor of Speech;* ROBERT G. WEBSTER, *Associate Professor;* G. HARRIS DAGGETT, *Associate Professor;* JOSEPH D. BATCHELLER, *Associate Professor of Speech;* J. HOWARD SCHULTZ, *Associate Professor;* MAX S. MAYNARD, *Assistant*

Professor; MARY T. EWALD, *Assistant Professor;* JOHN C. RICHARDSON, *Instructor;* LEWIS C. GOFFE, *Instructor;* F. VERNON GETTY, *Instructor;* ARTHUR S. HARRIS, *Instructor;* ELLIS SHORB, *Instructor;* PHILIP D. WHEATON, *Instructor in Speech;* ROBERT B. PARTLOW, *Instructor;* MARJORIE D. MURPHY, *Instructor;* PIERRE GUIET, *Instructor;* FRANGCON L. JONES, *Instructor;* NORVAL B. LEWIS, *Instructor.*

REMEDIAL COURSES

*A. REMEDIAL WORK IN WRITING. Required of all students whose attainments in this subject are found to be unsatisfactory. Assignment to classes from which the students may be excused either at the end of the semester or at the end of the year. 3 rec.; no credit.

B. REMEDIAL WORK IN SPEECH. See the section headed *Speech.*

*C. REMEDIAL WORK IN READING. Intensive drill in reading skills for six weeks. 3 rec.; no cr.

COURSES IN ENGLISH

1-2. (II). FRESHMAN ENGLISH. The training of students to write correctly and with force and to read with appreciation and discernment the chief types of literature. The staff of the Department under the chairmanship of Mr. Richardson. 3 rec.; 3 cr.

12. (V). THE BIBLE AS LITERATURE. A study of the various literary types found in the Bible and a survey of the influence of the Bible on English literature. Mr. Schultz. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr. (Alternate years; offered in 1951-1952.)

13, 14. (IV). AN INTRODUCTION TO ENGLISH LITERATURE. The development of English literature from its beginnings to the twentieth century by means of selected readings. Mr. Hennessy and Mr. Maynard. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

15, 16. (XVII). SURVEY OF AMERICAN LITERATURE. Mr. Webster and Mr. Daggett. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

22. (XIX). WRITING FOR THE NEWSPAPER. Mr. Webster. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

23, (23). (0).,WRITING OF TECHNICAL REPORTS. Mr. Webster, Mr. Schultz, and Mr. Harris. Required of Seniors in Agriculture and in Mechanical, Electrical, and Civil Engineering and in Building Construction. 1 rec.; 1 lec.; 2 cr.

25-26. (0). ADVANCED COMPOSITION. Practice with compositions of varying lengths. Class discussions with illustrative readings. Weekly conferences. Mr. Towle and Mr. Shorb. For Sophomores, Juniors, and Seniors. Prereq.: Engl. 1-2. 3 lec. or rec.; 3 cr.

27 (27). (II). ENGLISH GRAMMAR. Mr. Goffe. Limited to students in the teacher-preparation curriculums. 3 rec. 3 cr.

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*Any student may be recalled and reassigned to an instruction group at any time in his four years at college upon report of any member of the Faculty that his work in composition or in reading is deficient.

43, 44, 45. (V). READING FOR THOUGHT. Analysis of the thought and structure of forms of writing: exposition, description and narration, and poetry. Mr. Bingham and Mr. Partlow. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

53, 54. (XV). WRITING AS AN ART. The study and practice of forms of writing, together with an examination of the history of literary philosophy. Practice in mutual criticism through class workshop discussions and written comment. Freedom in selection and pursuance of writing interests. Individual conferences. Mr. Towle, For Juniors, Seniors, and Graduate Students. Prereq.: Engl. 25 or its equivalent. 2 lec.; 1 rec.; 3 cr. (Alternate years; offered in 1951-1952.)

Great Figure Group

55, 56. (IX). CHAUCER. Mrs. Ewald. For Juniors, Seniors and Graduate Students. 3 rec.; 3 cr.

*57, 58. (XIV). SHAKESPEARE'S PLAYS. The major histories, comedies, and tragedies. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr.

59. (V). MILTON. Mr. Schultz. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

60. (XI). BOSWELL'S JOHNSON. Mr. Maynard. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

61. (XI). WORDSWORTH. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

62. (X). BROWNING. Mr. Daggett. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

The Century or Period Group

63, 64, (XIII). THE RENAISSANCE AND ENGLISH LITERATURE, 1500-1600. Mr. Schultz. For Juniors, Seniors and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

65, 66. (XIII). ENGLISH LITERATURE IN THE SEVENTEENTH CENTURY. Mr. Towle. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

67, 68. (XVII). ENGLISH LITERATURE IN THE EIGHTEENTH CENTURY. Mr. Maynard. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

69, 70. (I). THE ENGLISH ROMANTIC PERIOD. Wordsworth, Coleridge, Lamb, Byron, Shelly, Keats, Hazlitt, DeQuincey. Mrs. Ewald. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

71. 72. (IX). VICTORIAN PROSE AND POETRY. Major non-fictional prose from Carlyle to Stevenson and major poetry from Tennyson to Hardy. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-52.)

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*English 57, 58 is a required course for English Literature majors and may not be used in fulfillment of the requirement of one semester in the Great Figure group.

73, 74. (XIX). BRITISH LITERATURE OF THE TWENTIETH CENTURY. Mr. Daggett. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

The Advanced American Literature Group

75. (XIII). NEW ENGLAND RENAISSANCE. Emerson Thoreau, and other transcendentalists. Mr. Daggett. For Juniors, Seniors and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

76. (V). AMERICAN NOVEL IN THE NINETEENTH CENTURY. Mr. Webster. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

77. (X). AMERICAN POETRY OF THE NINETEENTH CENTURY. Mr. Daggett. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

78. (XIII). AMERICAN HUMOR AND SATIRE. Mr. Webster. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; not offered in 1951-1952.)

79, 80. (XXI). AMERICAN LITERATURE OF THE TWENTIETH CENTURY. Mr. Towle. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

The Type Group

81, 82. (XI). INTRODUCTION TO ENGLISH DRAMA. The development of English drama, exclusive of Shakespeare, from the Middle Ages to the present. Mr. Hennessy. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr. (Alternate years; offered in 1951-1952.)

83, 84. (XV). THE ENGLISH NOVEL OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Mr. Bingham and Mr. Maynard. For Juniors, Seniors, and Graduate Students. 3 lec.; 3 cr.

*85, 86. (0). A SURVEY OF ENGLISH AND AMERICAN LITERATURE. The Department, under the direction of the Department Chairman. For Seniors and Graduate Students. 3 lec.; 3 cr. (Not offered in 1951-1952).

96. THE WRITING WORKSHOP. Not limited to any special type of writing, the student's main contribution to the course, writing, shall be in a mode and length of his own choice. Two days a week are devoted to mutual "workshop" criticism of class work. Two days are utilized to make clear the virtues of all good writing, with illustrations used constantly. On the fifth day, a special topic. Individual conferences are arranged to run parallel to class meetings as an integral part of the course. Members of the course may become members of the Writers' Conference at reduced rates. Open to all interested in writing who have had a first year of college or its equivalent and who have not previously taken the Writing Workshop. Mr. Towle. For Juniors, Seniors, and Graduate Students. Prereq.: Engl. 25 or its equivalent. 3 cr. *(Given only in the Summer Session.)*

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*This course does not carry major credits and cannot be counted toward the master's degree.

ENGLISH-EDUCATION (ENGL.-ED.) 91. (XXI). PROBLEMS IN THE TEACHING OF HIGH-SCHOOL ENGLISH. Principles and methods of teaching literature and composition in secondary schools. For all students who plan to teach English in secondary schools and for students majoring in Language, History, or Education. Mr. Goffe. Prereq.: A grade of C or better in Ed. 61. Literature majors in English, by permission of the instructor, all other students by fulfillment of the following: Engl. 13, 14; Engl. 16; one semester of Engl. 57, 58; Engl. 35; Engl. 43; a demonstration of skill in the use of English grammar, either by the satisfactory completion of Engl. 27 or by examination. 3 lec. or rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

SPEECH

Mr. Cortez, *in charge.*

THE SPEECH CLINIC. For any member of the University who wishes to have his voice and speech examined and corrected.

*B. REMEDIAL WORK IN SPEECH. Required of all students whose speech is found to be unsatisfactory.

33, 34. (XXI). DISCUSSION AND DEBATE. First semester: the proposition and its main issues, sources and tests of evidence, construction of the argumentative brief, laws of reasoning. Second semester; practice in discussion and debate, varsity debating, parliamentary procedure. For Sophomores, Juniors, and Seniors. Mr. Wheaton. Prereq.: Engl. 35 or its equivalent. 3 rec.; 3 cr.

35. (35). (0). PUBLIC SPEAKING. The fundamental appeals and audience psychology; extemporaneous and impromptu speaking for every occasion. Mr. Cortez, Mr. Batcheller, Mr. Wheaton. For Sophomores, Juniors, and Seniors. 3 rec.; 3 cr.

39, (39). (IX). RADIO SPEAKING. Practice in the preparation and delivery of radio continuity, readings, skits, talks, and announcements; microphone technique. Mr. Cortez. For Sophomores, Juniors, and Seniors. Prereq.: Permission of the instructor. 3 rec.; 3 cr.

47, 48. (0). DRAMATICS WORKSHOP. First semester: the fundamentals of acting, stage direction, stage deportment, and the analysis and development of roles in plays. Second semester: the methods of choosing, casting, and directing plays. Practical experience in productions. Mr. Batcheller. For Sophomores, Juniors, and Seniors. Prereq.: Permission of the instructor. 1 rec.; 2 lab.; 3 cr.

95. ADVANCED DRAMATICS WORKSHOP. The educational values of dramatics; methods of choosing, casting, and directing a play; and practical experience in production procedures, especially as related to the problems of a teacher who must stage a play. Conferences on individual problems. Mr. Batcheller. Not open to students who have previously had the Dramatics Workshop. For Juniors, Seniors, and Graduate Students with permission of the instructor. 3 cr. *(Given only in the Summer Session.)*

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*Any student may be recalled and reassigned to an instruction group at any time in his four years at college upon report of any member of the Faculty that his work in speech is deficient.

97. Radio Workshop. A laboratory course affording daily practice in radio: script writing, announcing, managing, directing, and creating sound effects. All students will participate in readings, sketches, news casting, ad-libbing, etc. Voice recording will be frequent. The broadcasting facilities of the University will be used. For Juniors, Seniors, and Graduate Students with permission of the instructor. *(Given only in the Summer Session.)*

99. (IX). Speech for Teachers. Constant practice in reading announcements, short stories, and selections of prose and verse. Emphasis upon oral interpretation. Prepared talks on methods of reading before the class. Voice analysis and recording. Mr. Cortez. For Juniors, Seniors, and Graduate Students with permission of the instructor. Recommended prereq.: Engl. 35 or 47. 3 rec.; 3 cr. *This course is not available for credit to students who have completed Engl. 36.*

ENTOMOLOGY

James G. Conklin, *Professor;* Walter C. O'Kane, *Professor Emeritus;* Robert L. Blickle, *Associate Professor.*

2. (VII). Elementary Entomology. An introduction to Entomology in its broad aspects. The structure, biology, and classification of insects. Each student is required to make an insect collection. Mr. Conklin. 2 lec.; 1 lab.; 3 cr.

41. (IX). Insects of Orchard and Garden. Studies of the life histories and habits of important insect pests of orchard, garden, and certain field crops. Methods of control. Apparatus for applying insecticides. Mr. Conklin. 2 lec.; 1 lab.; 3 cr.

54. (IX). Medical Entomology. Insects and arachnids in relation to public health. The more important disease carriers, their biologies, and means of control. Adapted especially for students interested in public health or medicine. Mr. Blickle. Elective for Juniors and Seniors. 2 lec.; 1 lab. 3 cr.

55. (--). Household Insects, Stored Products Insects. The problems of pest prevention and control in buildings. Pests of fabrics and clothing. Insects affecting foodstuffs. Termites and other insects attacking wooden structures. Mr. Conklin. 1 lec.; 1 lab.; 2 cr. (Alternate years, offered in 1951-1952.)

56. (V). Forest Insects. Principles of Forest Entomology. Life histories and habits of the more destructive forest insects. Forest insect control. Adapted especially for forestry students. Mr. Conklin. Prereq.: Ent. 2. 1 lec.; 1 lab.; 2 cr.

57-58. Advanced Entomology. The anatomy and physiology of insects. Systematic Entomology. Mr. Conklin, Mr. Blickle. Open to others than Entomology majors by permission of the Department Chairman. 2 lec.; 2 lab.; 4 cr.

59-60. Advanced Economic Entomology. Problems in applied Entomology. The literature of Economic Entomology. Investigational methods. Studies of the specialized phases of Entomology. Mr. Conklin, Mr. Blickle. Required of Entomology majors. Open to others than Entomology majors by permission of the Chairman of the Department. 1 to 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

FINE ARTS

(See The Arts)

FORESTRY

Clark L. Stevens, *Professor;* Lewis C. Swain, *Associate Professor;* Charles M. Matthews, *Assistant Professor;* Howard B. Kriebel, *Instructor.*

1. (XIII). Management of Farm Woodlands. Forestry principles as applied to the orderly handling of farm woodlots. Mr. Swain. Elective for all students, except Forerstry majors. 2 lec.; 1 lab.; 3 cr.

2, 3, 4, 5, 6, 7, 8. (0). Forestry Practice. Practical work in the University Forest. The student gains experience in various forestry operations, and progresses from laborer to supervisor. Mr. Stevens and others. Elective for any forester. 1 lab.; 1 cr.

21. Forest Ecology Problems. Summer Camp course. Studies of several different forest types designed to show the inter-relations of plants and animals, and the important factors of their environment. The needs of the individual student are considered in planning the program. Mr. Kriebel. Elective for any student. Forty hours of assigned reading and field work per week for 8 weeks. 10 cr.

26. (XI). Wood Identification. The uses of lumber; physical properties and identification of the commercially important woods. Mr. Swain. Prereq.: Permission of the instructor. 2 lec.; 1 lab.; 3 cr.

27. Silvics (—). Considers the effect of the environment of the forest; forces which influence the growth of trees and stands; practice in measuring the intensity and duration of environmental factors; detailed as well as general studies of forest vegetation. Mr. Kriebel. For Sophomores in Forestry. Prereq.: Bot. 6. 2 lec.; 1 lab.; 3 cr.

28. (I) Mensuration and Surveying. Theory and practice in the elementary principles of land surveying, mapping, and timber measurements as they apply to the field of forestry. Study and application of basic statistical theory to forest mensuration. Mr. Matthews. 2 lec.; 2 lab.; 4 cr. Prereq.: Math. 2 or 11.

29-30. (IX). Silviculture. The art of producing and tending a forest. Seed collection, storage, and testing; nursery practice; forest plantations; natural regeneration, intermediate cuttings; silvicultural practice. Mr. Kriebel. For foresters. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

31, 32. (XV). Forest Utilization. Methods of logging and milling in the chief lumber-producing regions of the United States; forest products, their manufacture and marketing; with special problems of the lumber business. Mr. Swain. Prereq.: Permission of the instructor. 2 lec.; 1 4-hour lab.; 4 cr.

(33). (V). Forest Protection. Protection of the forest from such enemies as fire, insects, fungi, trespass, and climatic extremes; also the construction of forest improvements associated with protection plans. Mr. Kriebel. For Juniors in Forestry. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

34. (V). Forest Wildlife Management. Designed to acquaint the student with the fundamental principles underlying the management of wildlife as a forest crop. Mr. Stevens. For students in Game Management Group. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

35, 36. Special Problems. Work to be arranged according to the needs of individual students. Mr. Stevens, Mr. Swain, Mr. Matthews, Mr. Kriebel. Prereq.: Permission of the instructor. 2 lec.; 1 lab.; 3 cr.

37. (XI). Forest Recreation. Principles and methods for planning, designing, and administering public and semi-public forest recreational areas. Mr. Kriebel. Prereq.: Permission of the instructor. 2 lec.; 1 lab.; 3 cr.

39-40. (IX). Forest Management. Management of woodlots and large forest tracts for the purpose of gaining the largest immediate and future returns. Preparation of working plans to coordinate forest operations. Mr. Matthews. Prereq.: For. 27-28; 29-30; 42. 2 lec.; 2 lab.; 4 cr.

41. Wildlife Management Practice. Summer Camp Course. Field work on the University Forest at Passaconaway, N. H., and on a game management area of the White Mountain National Forest. Mr. Stevens. For students in Game Management Group. Elective for others by permission of the instructor. Forty hours per week for 8 weeks. 10 cr.

42. Summer Camp. Practice in forest mapping and surveying; measurement of forest products; timber estimating; and studies of growth and yield of the commercial tree species of New England. Mr. Matthews. Forty hours per week for 8 weeks. 10 cr.

43. (I). Advanced Mensuration. The study of volume, growth, and yield in the forest. Extension treatment of the graphic and statistical solution of forest measurements based on three and four variables. Mr. Matthews. Prereq.: For. 28, 42. 1 lec.; 2 lab.; 3 cr.

44. (XIX). Forest Economics and Finance. Application of economics and finance to the forest business. Nature of forest investments. valuation of timber and forest lands, forest taxation, and forest insurance. Mr. Matthews. Prereq.: Math. 2 or 6; Econ. 1. 3 lec.; 3 cr.

53. Wildlife Game Management Problems. Summer Camp Course. Special problems in the management of fish and game. Mr. Stevens. Open to advanced students or to those who show unusual promise in the field of research. Prereq.: Permission of the instructor. Forty hours per week for 8 weeks. 10 cr.

55. 56. (--). Advanced Forest Wildlife Management. Readings and discussions on the properties of game populations, and the various phases of management, including public relations. Preparation of a game management plan. The student may be required to spend several week-ends working with the state department, checking the deer kill or helping with other investigational projects. Mr. Stevens. For Seniors in the Wildlife Management Group. 2 lec.; 1 4-hour lab.; 4 cr.

57. (XIX). Use and Application of Air Photos. Elementary principles, with emphasis on the value and use of aerial photos as a cost and time saver in the solution of technical and economic problems. Characteristics,

stereoscopic study, and interpretation of aerial photographs. Their application in various phases of forestry. Mr. Matthews. Prereq.: Math. 13 and permission of instructor. 2 lec.; 2 lab.; 4 cr.

FRENCH

(See LANGUAGES)

GEOLOGY AND GEOGRAPHY

T. RALPH MEYERS, *Professor;* DONALD H. CHAPMAN, *Professor;* GLENN W. STEWART, *Assistant Professor;* HORACE G. McDOWELL, JR., *Instructor;* IRVING H. TESMER, *Instructor.*

GEOLOGY

1-2. (XXII). PRINCIPLES OF GEOLOGY. The earth and its history. A consideration of land forms and a discussion of the materials and structures of the earth's crust. The interpretation of past geologic events, and their effect on the development of life forms. Messrs. Meyers, Chapman, Stewart, McDowell and Tesmer. 3 lec. or rec.; 1 lab.; 4 cr. *This course cannot be used to satisfy major requirements.*

7, (XV). GENERAL GEOLOGY. A general introductory course in Physical Geology. The structures and materials of the earth's crust and the forces which have produced and altered them. Mr. Stewart. For students in Technology and Agriculture. *Open to Liberal Arts students by permission only.* 2 lec. or rec.; 2 cr. *(Not available for credit after completing Geol. 1)*

31. (XIX). PHYSIOGRAPHY. The factors producing the present aspect of the land surface, particularly that of New England. Special emphasis on the work of running water, glaciers, and marine agents. Field trips during the fall season. Mr. Chapman. Prereq.: Geol. 2 or Geog. 3. 3 lec. or rec.; 1 lab.; 4 cr.

32. (XIX). GLACIAL GEOLOGY. A study of the characteristics of existing glaciers and an interpretation of Pleistocene glacial features. The abundant and varied evidence of glaciation in northeastern North America and Baltic Europe will be emphasized. New Hampshire examples of both Alpine and Continental glaciation will be studied in the field. Mr. Chapman. Prereq.: Geol. 31. 2 lec.; 1 lab.; 3 cr.

33. (I). STRUCTURAL GEOLOGY. An advanced study of the relatively local structural units of the earth's crust and the mechanics of their formation. The recognition and interpretation of the different types of folds, faults, joints, unconformities, plutons, and other structures will be discussed with special emphasis on the significance of primary features, drag folds, and secondary foliation and lineation. Examples of some structural features will be demonstrated on field trips in the Durham area. Problems related to folds, faults, and structure contours will be assigned in the laboratories. Mr. Stewart. Prereq.: Geol. 1 or 7, and Math. 13 or equivalent. 3 lec. or rec.; 1 lab.; 4 cr.

34. (I). ELEMENTS OF PETROLOGY. A systematic study of rock types together with their modes of occurrence and problems of origin. Mr. Stewart. Prereq.: Geol. 33. 2 lec.; 1 lab.; 3 cr.

35-36. (XV). Mineralogy. The minerals that make up the earth's crust: crystals; minerals and their determination by means of physical and chemical characteristics; and mineral associations to form rocks. Mr. Meyers. Prereq.: One course in Geology or one course in Chemistry. 2 lec. or rec.; 1 lab.; 3 cr.

39-40. (X). Paleontology. The history, development, and morphology of the various groups of organisms, especially the invertebrates, as recorded by fossils found in the rocks of the earth's crust. Specimens will be collected and studied on a field trip which will be held during the second semester. Mr. Tesmer. Prereq.: Either Geol. 1-2, Biol. 1-2 or equivalent. 2 lec. or rec.; 1 lab.; 3 cr.

42. (XI). Field Geology. This course is for the student who desires to acquaint himself with some basic geological field techniques, and the preparation of geological maps and reports from field data. General methods of mapping will be demonstrated but specific instructions will be given in the preparation of geological maps and sections by means of pace and compass, hand level, aneroid barometer, plane table, and aerial photographic methods. Problems in aerial geology and in mine mapping will be included. Mr. Stewart. Prereq.: Geol. 33. 1 lec. and 1 lab.; 2 cr.

53, 54. (V). Economic Geology. First semester: the types of coal and their occurrence in the United States; petroleum, the structures in which it is found, and the distribution and geology of oil fields, especially in the United States; industrial minerals and their utilization. Second semester; the metals, their ores, and the geology of important ore deposits. Mr. Meyers. Prereq.: One year's work in Geology. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

57, (57). (0). Geological Problems. Special problems by means of conferences, assigned readings, and field or laboratory work, fitted to individual needs. Messrs. Meyers, Chapman, Stewart, and Tesmer. Prereq.: Permission of the instructor. 1-5 cr. *This course may be taken more than once.*

GEOGRAPHY

Register for these courses as Geog. 1, etc.

Courses in geography cannot be used to satisfy the Science requirements, nor major requirements in Geology.

1, 2. (X). Geography of the Western and Eastern Hemispheres. A general survey of the geography of the earth, with emphasis upon its physical aspects. First semester: Western Hemisphere. Second semester: Eastern Hemisphere. Mr. McDowell. 2 lec. or rec.; 2 cr.

3. (V). Physical Geography. A study of the physical elements of Geography and their relationship to man. Mr. McDowell. 3 lec. or rec.; 3 cr.

4. (V). Economic Geography. The resources of the continents and the relationship of these with the principal activities of man. A study of fishing, agriculture, mining, industry, transportation, and commerce is included. With Geog. 3, this course completes a year's basic work in Geography. Mr. McDowell. Open to all students. 3 lec. or rec.; 3 cr.

5. (XV). Political Geography. A study of the geographic foundations of the state, of the influence of geography on the political organization of the

world in war and peace. Special emphasis on recent schools of thought, such as German geopolitics, British, French, and American political geography. Mr. McDowell. Prereq.: A college course in geography or permission of the instructor. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

10. (XV). Geography of North America. The North American continent and its physical aspects. The weather and climate of the continent. The countries, treated regionally. Intensive study of the physical geography of New England. Mr. McDowell. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

12. (XV). Geography of Latin America. The physical and economic geography of Mexico, Central America, and the South American countries, treated regionally. Mr. McDowell. Prereq.: A college course in geography or permission of instructor. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

21. (VII). The Weather. The interpretation of atmospheric phenomena; the heating and circulation of the atmospheres and the nature and movement of the air masses which influence the weather of North America and particularly New England. Mr. Chapman. 2 lec. or rec.; 2 cr.

22. (VII). Climates of the World. Classification of climates of the world. Examples and brief descriptions of major climatic types, and their influence on the life of man. Mr. Chapman. Prereq.: Geog. 21. 2 lec. or rec.; 2 cr.

57. (57). (0). Meteorological or Geographical Problems. Special problems by means of conferences, assigned readings, and laboratory work, fitted to individual needs. Mr. Chapman and Mr. McDowell. Prereq.: Permission of the instructor. 1-5 cr. *This course may be taken more than once.*

GERMAN

(See Languages.)

GOVERNMENT

John T. Holden, *Professor;* George H. Deming, *Assistant Professor;* Allan A. Kuusisto, *Assistant Professor;* John H. Romani, *Instructor*

1. (XIV). (1). (IX). American Government. A study of the nature and growth of the political institutions of the American people on the national level. The fundamentals of American government, constitutionalism, popular consent, popular control, law-making, the administration of public affairs are considered. Constant reference will be made to other systems of government and to current political developments. Mr. Holden and Mr. Kuusisto. Open to all students. 3 lec. or rec.; 3 cr.

2. (XIV). Problems of American Government. This course aims to acquaint the student with the principal problems and public policies of the American government at its various levels — national, state, and local. Mr. Holden and Mr. Kuusisto. Open to all students. 3 lec. or rec.; 3 cr.

4. (XIX). America in World Affairs. A study of the problems of American foreign relations. The formulation and execution of policy, the emergence of the United States as a world power, contemporary issues confronting

the country and policies adopted to meet these issues. Mr. Kuusisto. Open to all students. 3 lec. or rec.; 3 cr.

7, 8. (XII) COMPARATIVE GOVERNMENT. The subject-matter of this course is divided into two parts. The first semester is a study of parliamentary governments including Great Britain, France, Canada, and representative smaller states. The second semester will be given to Russia, Nazi Germany, and Japan. Mr. Kuusisto. Open to Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

11. (--). STATE GOVERNMENT. This course acquaints the student with the development of state government in the United States. Consideration will be given to the executive function, the legislative function, the judicial function, the administrative organization of state government, intergovernment relations, and the fiscal organization of the state government. Particular emphasis will be given to the organization and administration of government in New Hampshire. Mr. Deming. Prereq.: Govt. 1, 2 or permission of the instructor. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

13. (XV). LOCAL GOVERNMENT. A study of current problems in government of local areas. Subjects covered are: the effects of urbanization in government, characteristics of the various types of county government, the legal basis of local government in New England, the forms of municipal government with intensive analysis of the council-manager plan, centralization and decentralization in modern democracy, and selected administrative activities of the town and city. Mr. Deming. Prereq.: Govt. 1 and 2 or permission of the instructor. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

15. (XIII). POLITICS AND PRESSURE GROUPS. A study of the fundamental problems of popular control of government. The history, programs, and functions of political parties. Major pressure groups, their organization, methods, and objectives. Party finance, nomination procedures and elections, machines and bosses, political campaigns, problems of public control, and the current political situations. Open to Sophomores, Juniors, and Seniors who have had Govt. 1. 3 lec. or rec.; 3 cr.

16. (XIII). PUBLIC OPINION AND PROPAGANDA. A study of public opinion and of the opinion-forming process. Propaganda techniques and methods; the propaganda of totalitarian governments; the influence of the press, the radio, and the motion pictures in moulding public opinion; polls as devices for measuring public opinion. Current-day problems involving an analysis of propaganda techniques and identification, propaganda organizations, goals, and strategy are emphasized. Open to Sophomores, Juniors, and Seniors who have had Govt. 1, Psych. 1, or Soc. 1. 3 lec. or rec.; 3 cr.

51.(IX). INTRODUCTION TO LAW. A study of law as distinguished from other forms of social control; origin and development of legal systems, judicial law making, statutory law, and judicial administration. Open to Juniors and Seniors who have had Govt. 1. 3 lec. or rec.; 3 cr.

52. (IX). CONSTITUTIONAL LAW. A case study of the American Constitution, stressing the powers of Congress and the President. The Bill of Rights, limitations upon state legislation, and the nature of the judicial process. Consideration is given to the economic and social aspects of constitutional law principles. Open to Juniors and Seniors who have had Govt. 1, 2, and 51. 3 lec. or rec.; 3 cr.

55. (XI). WORLD POLITICS. The nature of the international community and the foundations of national power. An analysis of the major forces which influence contemporary world politics, including nationalism, imperialism, international economics, population problems, ideological differences, and the techniques of total war. Emphasis is placed on the critical areas in the present East-West power struggle. Mr. Kuusisto. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

56. (IX). INTERNATIONAL LAW AND ORGANIZATION. This course has a double aim: to analyze the rules governing the conduct of states and to examine existing international organizations. An analysis of the United Nations and its subsidary organizations, as well as the defunct League of Nations and it agencies, is made in terms of their effectiveness in bringing law and order to the international community. The policies of the Great Powers toward major issues of both international law and organization are examined. Mr. Kuusisto. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

57. (XIX). PUBLIC ADMINISTRATION. An examination of concepts and relationships involved in getting the job done in government. Material covers the expansion and present scope of goverment administration; the enlarged responsibility to the public which rests upon the modern administrator; organization, co-ordination, and planning as tools of management; personnel, finance, and other selected administrative techniques. Mr. Deming. Open to Juniors and Seniors who have had Govt. 1. 3 lec. or rec.; 3 cr

58. (XIX). PROBLEMS OF PUBLIC ADMINISTRATION. This course offers an opportunity to study major problem areas in public administration. Problems receiving attention include policy formation, administrative organization, personnel and fiscal management. and public relations. Where appropriate. class and individual studies will be encouraged. Mr. Deming. Prereq.: Govt. 57. 3 lec. or rec.; 3 cr.

59, (60). (0). GOVERNMENT APPRENTICESHIP. Designed to give the student a practical concept of local and state government administration. At least two afternoons a week will be spent working under the supervision of a public official in a unit of state or local government. The student will be assigned in the Bureau of Government Research service projects designed to assist the public official under whom the student is working. The student will be expected to acquaint himself with the instructional materials available in his field of apprenticeship. Periodic reports will be required. Mr. Deming. Open to Juniors and Seniors. Prereq.: Govt. 13 or Govt. 57 and permission of the instructor. 4 cr.

63. (XIII). POLITICAL THOUGHT IN THE WEST. A survey of the principal political theories from Plato and Aristotle to the beginning of the modern liberal tradition. The course is designed to show the growth and development of political thinking and institutions in terms of the development of medern government. Special emphasis will be given to the development of the modern nation state and to its fundamental institutions. Mr. Holden. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

64. (XIII). MODERN POLITICAL THOUGHT. A survey of modern Western political thought from the emergence of the nation state to the present. Special attention will be given to the meaning and growth of the basic pat-

terns of thought on the Continent and in England, including liberalism, democracy, socialism, communism, facism, and nazism. American political thought will be traced from its English and European origins, stressing the more modern developments in Federalism, judicial review, centralization, separation of powers, etc. Mr. Holden. Open to Juniors and Seniors. 3 lec. or rec.; 3 cr.

65, 66. (0). RESEARCH IN GOVERNMENT PROBLEMS. An individual research project in one of the fields of government, *e.g.*; Local or State Administration, Comparative Government, International Relations, International Organization, Political Theory, Politics, or Public Law to be prepared under the direction of a member of the staff. Emphasis will be placed on the methods and sources of research in government. The department staff. Open to Senior majors in Government. 3 cr.

67. (XI). PUBLIC POLICY AND INDUSTRY. A study of public policy and the regulatory process on both the federal and state levels. The principal emphasis of the course is upon the ideological, legal, economic, political, and administrative aspects of public regulation. Formation of public policy and regulation by administrative agencies on selected divisions of industry form the core of the course. Prereq.: Govt. 1 or 2. 3 lec. or rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

GREEK

(See LANGUAGES)

HISTORY

PHILIP M. MARSTON, *Professor;* WILLIAM YALE, *Associate Professor;* GIBSON R. JOHNSON, *Associate Professor;* ALLAN B. PARTRIDGE, *Associate Professor;* DAVID F. LONG, *Associate Professor;* HOWARD V. JONES, *Instructor*

In these courses an important place is given to historical reading carried on in the reference room. Often a considerable part of the work is written.

The statements in regard to prerequisites are for Liberal Arts students. Agriculture and Technology students should consult the Department Chairman.

BASIC COURSE

The following constitutes a basic course, required of all students in the College of Liberal Arts.

1, 2. (XVII). INTRODUCTION TO CONTEMPORARY CIVILIZATION. Designed to provide a background of appreciation of the social significance of man's environment, the nature of man, the cultural heritage from the past, recognition of historical allusions in literature and conversation, and knowledge of the general sequence of historic events. Prehistoric and historic social evolution. The historic explanation of modern life and an appreciation of the problems of contemporary society. Messrs. Johnson, Jones, Long, and Yale. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements.*

HISTORY

GROUP A. ANCIENT AND MEDIAEVAL

This group includes many of the customary well-established courses in History. Students electing History courses with the general idea of rounding out their knowledge should include a selection from this group. History majors are expected to do a part of their work in it.

11. (XV). The Ancient Orient. Pre-historic culture in the Near East; a consideration of the contributions of the many peoples and empires, from the Persian highlands to Egypt and the Ægean, in the making of the civilization handed on to the Mediterranean and Western world. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

12. (XV). History of Greece. The deep-lying elements of Western civilization as developed by Greek thought and action. Hellenic culture and its influence, including adequate attention to the period after the death of Alexander the Great. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

13. (XV). History of Rome. The study of Roman civilization from the pre-literary foundations of Rome to the fourth century A.D. The aim is to deal with the life of society during the republican and imperial periods and to show the background of mediæval culture and the influence of the Roman upon later human affairs. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

14. (XV). Mediaeval History. The story of things as they were from the later Roman Empire to the Renaissance era in Europe. A leading purpose is to call attention to the dependence of the Middle Ages upon an earlier period, and another is to point out the mediaeval foundations of Modern European history. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

English History. (See History 21.)

Far Eastern History. (See History 31.)

GROUP B. MODERN

This group is planned in recognition of the practical importance and large place assigned by common practice to modern, recent, and present-day aspects of History.

19, 20. (VII). Modern European History. Studies of: (1) That most important phenomenon, the modern national state; (2) Western civilization as it reached a peak in Europe; (3) European expansion and world leadership, from the late fifteenth to the early twentieth century. Eastern Europe, Asia, and Africa are referred to as backgrounds of the colonial movement. Because of its general importance, the course is open to all students; nevertheless, it is better, if possible, to study some of the earlier periods first. Mr. Yale. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

21, 22. (V). History of England. The history of the British Isles from earliest times to the present, and a consideration of the British Empire and Commonwealth of Nations. A parallel to English literature, a background to American political history, and a study of English culture and institutions in the democratic and social integration of the world. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

31, 32. (XXI). THE FAR EAST. A study of the history of the peoples and cultures of Japan, China, India, and adjacent territories for the purpose of gaining a better understanding of their contemporary problems and ways of thinking and acting, especially as they relate to modern world developments. Mr. Johnson. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

63, 64. (XXI). RECENT WORLD HISTORY. The world from the first World War, exclusive, for the most part, of American affairs, and stressing historical developments in Europe, the Near and Far East. Mr. Yale. For Juniors and Seniors. 3 lec. or rec.; 3 cr.

71, 72. (XVII). HISTORY OF RUSSIA. A study of Tsarist Russia, its domestic and foreign affairs, and its collapse in 1917; followed by a study of Soviet Russia from the creation of the Soviet Union to the present. Mr. Yale. Prereq.: Hist. 19, 20 or permission of the instructor. For Juniors and Seniors. 3 lec. or rec.; 3 cr.

GROUP C. AMERICAN HISTORY

This group addresses itself to (1) the responsibility of the American student to know his own country; (2) the widespread and well-established interest in New England's part in our history; (3) the developing Pan-American world; (4) some special aspects of American life, and American culture of the nineteenth and twentieth centuries.

7, 8. (XIII). HISTORY OF THE UNITED STATES. A general survey of American history from Washington's first administration to the present. Political, social, economic and diplomatic aspects are given equal attention. Mr. Long. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

9, 10. (IX). LATIN-AMERICAN HISTORY. The development and influence of Spanish and Portuguese culture as a wide-spread world force; the history of the Latin-American peoples; the relationship of Latin-America to North America, particularly in view of recent growth in friendly and diplomatic relations. Mr. Partridge. For Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

51, 52. (III). COLONIAL AND REVOLUTIONARY AMERICAN HISTORY. Colonial beginnings in America, national rivalries, the English colonies, the Revolution, and our national life to 1789. Early forms of Americanism in the making. Mr. Marston. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

59, 60. (III). SOCIAL AND CULTURAL HISTORY OF NEW ENGLAND. From the settlements to the present. The material and intellectual aspects peculiar to New England's social and cultural life. The viewpoint is partly that of the antiquarian. Source materials figure considerably. It is assumed that the student is familiar with the general history of New England. Mr. Marston. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

83, 84. (I). Diplomatic History of the United States. While primarily a course on the diplomatic history of the United States from the Revolution to date, special attention is given to internal politics throughout the world which have affected our foreign relations. Mr. Long. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.)

85, 86. (I). Twentieth-Century America. A study of the history of the United States since 1890. Emphasis is placed on economic discontent and political protest from the Populist Revolt to date; and on the world conditions changing and molding United States foreign policy. Mr. Long. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.)

GROUP D. HISTORY FROM AN EDUCATIONAL OR PHILOSOPHICAL VIEWPOINT

Philosophy of History. (See Philosophy 55, 56.)

87, 88. (XIII). The Intellectual History of Western Civilization. The history of ideas and of the great epochs in human thought. A study of the dominant characteristics of the leading cultures and of the transitions from one to the other. The content of the course will be selective rather than inclusive. Special attention will be given to a study of some of the major source writings of each period. Mr. Johnson. For Juniors and Seniors. 3 lec. or rec.; 3 cr. (Not offered in 1951-1952.)

History-Education 91. (0). Problems in the Teaching of High-School History and Other Social Studies. Bibliography and new interpretations of history; the social studies curriculum, past and present; aims and objectives in the social studies; selection and organization of teaching material; teaching and testing techniques. Special emphasis on teaching American History and the Problems of American Democracy. Mr. Long. Open to students who have satisfactorily completed Hist. 7, 8; six credits in other history courses, *(exclusive of Hist. 1, 2)*; six credits from Govt. 1, Econ. 1, or Soc. 1; and Ed. 61 with a grade of C or better. 3 lec. or rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

HOME ECONOMICS

Helen F. McLaughlin, *Professor;* Sarah Thames *Assistant Professor;* Frances Platts, *Assistant Professor;* Elizabeth Rand, *Assistant Professor;* Alice Foster, *Instructor;* Edith Yeomans, *Instructor.*

1, 2, (XXI). Homemaking. A survey of the various phases of homemaking and housekeeping activities. This course is intended for students in other departments who wish some preparation for homemaking. Mrs. McLaughlin. 3 lec. or rec.; 3 cr. *This course cannot be used to satisfy major requirements in Home Economics.*

CLOTHING AND TEXTILES

3. (III). Clothing Selection. The selection of suitable and becoming clothing; color; good grooming; clothing budgets; care and repair of clothing. Miss Foster. 3 lec. or rec.; 1 lab.; 3 cr.

4. (III). Textiles. A study of textiles with emphasis on their characteristics, utilization, care and purchase from the point of view of the consumer. Mrs. Yeomans. 2 lec. or rec.; 1 lab.; 3 cr.

5-6. (0). Clothing Construction. Application of the principles of design and development of techniques in garment construction, including cotton and woolen garments, a renovation problem; pattern alteration, and children's clothes. Mrs. Yeomans. 2 3-hr. labs.; 3 cr.

61, (61). (XV). Advanced Problems in Clothing Construction. A tailored suit or coat and one or more individual problems involving advanced techniques in the construction and renovation of clothing. Mrs. Yeomans. Permission of instructor. 2 labs.; 2 cr.

(62), 62. (XV). Problems in Sewing for the Home. Curtains, draperies, slip covers, and bedspreads. Mrs. Yeomans. Permission of instructor. 2 labs.; 2 cr.

Historic Costume and Design. (See Arts. 43, 44.)

FOOD AND NUTRITION

15-16. (III). Foods. The composition, selection, preservation, and preparation aspects of foods; meal planning, and table service. Miss Platts. 1 lec.; 2 labs.; 3 cr.

21, 22. (XIX). Elementary Meal Service. Planning, preparing, and serving nutritious, economical, and attractive meals. Miss Platts. For students not majoring in H.Ec. 1 lec.; 1 lab.; 2 cr.

71. (XX). Experimental Cookery. The application of principles and methods for organizing general and specific problems in food preparation, of an experimental nature, will be considered. Miss Platts. Prereq.: H.Ec. 15-16. 1 lec.; 1 lab.; 2 cr.

72. (XX). Advanced Problems in Food. Selected problems in one or more phases of food study such as advanced food preparation, advanced meal planning, and table service. Miss Platts. Prereq.: H.Ec. 15-16. 1 lab.; 2 cr.

74. (V) Dietetics. Application of the principles of human nutrition to varying physiological, social, and economic conditions. Mrs. McLaughlin. 2 lec.; 1 lab.; 3 cr.

(75). (XIII). Diet Therapy. Study of special diets used for the prevention and treatment of various diseases. Readings in the current literature of nutrition. Mrs. McLaughlin. Prereq.: H.Ec. 74. 2 rec.; 1 lab.; 3 cr.

CHILD DEVELOPMENT

25-26. (III). Child Development. The normal development and care of the infant and child; physical, mental, social, and emotional development and guidance. Observation and work with children at University Nursery School. Miss Rand. Prereq. or parallel requirement: Psych. 1 or Ed. 41. 2 lec. or discussions; 2 hours of laboratory work. 3 cr.

81, (82), (81), 82. Projects in Child Development. Principles of child guidance. Nursery-school procedures and practices. Discussion and supplementary projects based upon the special interests of the students. Prereq.: H.Ec. 25, 26. 1 lec. or discussion; laboratory work at University Nursery School. Miss Rand. 2-3 cr.

HOME MANAGEMENT

32. (XVIII). Home Furnishing. Historical survey of furniture; problems in decorating and furnishing a modern home. Miss Foster. 3 lec., rec. or conferences; 3 cr.

33. (III). Home Management. Management of time, energy, and money in relationship to home living; skills and techniques for care of the home. Miss Foster. Not open to Freshmen. Some laboratory work will be incorporated in the class periods. 3 lec. or rec.; 3 cr.

34. (III). Consumer Problems. Problems of the consumer as related to market practices, quality and quantity standards; evaluation of advertising, and selection of goods and services for the home. Miss Foster. 3 lec. or rec.; 3 cr.

35, (35). (XXI). Home Management House. Participation in homemaking; planning, buying, and preparing meals; care of the house; efficient work habits; problems of management. Residence in the Home Management House. Miss Foster. Half semester. (Two groups of 6 each.) Permission of the Department Chairman. 3 cr.

83. (XI). Home and Family Life. A study of the problems confronting the home today in everyday living, such as relationships between family members, desirable home atmosphere, and worthy home membership. Mrs. McLaughlin. 3 lec. or rec.; 3 cr.

Home Building. (See Agricultural Engineering 11.)

Home Equipment. (See Agricultural Engineering 12.)

INSTITUTIONAL MANAGEMENT

41. (XXI). Institutional Management. The organization and management of institutional food and housekeeping services; personnel policies, plant sanitation, records, menu planning, production, and merchandising. Miss Thames. Prereq.: H.Ec. 49. 3 lec. or rec.; 3 cr.

43-44. (0). Institutional Practice. Practical experience in the kitchens and serving room of the University Commons. Miss Thames. 2 lab.; 2 cr. 2 cr.

45. (IX). Furniture and Textiles. Problems in the purchase, care, and use of furniture and textiles for hotels and hospitals. Not open to Freshmen. Mrs. Yeomans. 3 rec.; 3 cr.

48. (0). Field Work in Institutional Practice and Extension. Four to six weeks' residence and practical experience in an approved hospital or other institution, or with extension groups, supplemented by readings and conferences. Mrs. McLaughlin and Extension staff. 4-6 cr.

49-50. (III). Quantity Cookery. A study of the quantity production and buying of food. Principles of large quantity methods and standards as applied to hotels and institutions. Laboratory work in the quantity cookery laboratory and University Dining Hall kitchens. Miss Thames. Prereq.: H.Ec. 15-16. 1 lec.; 1-4 hr. lab.; 3 cr.

HOME ECONOMICS EDUCATION

47, (47). (0). PROJECTS IN HOME ECONOMICS. Opportunities for students to work out projects supplementary to or in advance of other courses. Not more than 9 credits may be taken in this course. Members of Home Economics staff. Conferences and assignments; reference readings; 1-3 cr.

HOME ECONOMICS-EDUCATION (HE-ED). 91. (IX). PROBLEMS IN THE TEACHING OF HIGH-SCHOOL HOME ECONOMICS. Mrs. McLaughlin. 3 lec. or rec.; 3 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 94. (0). SUPERVISED TEACHING IN HIGH-SCHOOL HOME ECONOMICS. Mrs. McLaughlin. Twelve weeks' supervised teaching, 12 cr.

HOME ECONOMICS-EDUCATION (HE-ED) 96. (0). SEMINAR IN THE TEACHING OF HIGH-SCHOOL HOME ECONOMICS. Mrs. McLaughlin. Prereq.: HE-Ed. 94. Three weeks' intensive work following period of supervised teaching. 3 cr.

HOME ECONOMICS-EDUCATION. (HE-ED) 98. (0). PRINCIPLES AND TECHNIQUES OF DEMONSTRATIONS. Fundamentals of demonstration methods. Experience in conducting demonstrations in foods, clothing, home management, equipment, and other fields. Home Economics staff. 1 conference; 1-2 lab.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

HORTICULTURE

ALBERT F. YEAGER. *Professosr;* J. RAYMOND HEFLER, *Associate Professor;* L. PHELPS LATIMER, *Associate Professor;* WILLIAM W. SMITH, *Associate Professor;* RUSSELL EGGERT, *Associate Professor;* EDWARD B. RISLEY, *Instructor.*

2. (V). PLANT PROPAGATION. Discussion and practice including soil, sand, and peat media; seed treatments, seeding, watering, light, feeding, and temperatures; leaf, softwood and hardwood cuttings; hormone treatments; budding, root, top- and bridge-grafting; seedbed and nursery practice. Mr. Latimer, Mr. Smith. 1 lec.; 1 lab.; 2 cr.

13. (XI). HORTICULTURAL CROPS AND JUDGING. Students are taught how to select fruits, vegetables, and flowers for exhibition, marketing, and domestic use. Instruction is also given in the management and judging of small fairs and exhibitions. A wide range of plants and varieties, both fresh and frozen, are used as class material. Required of all Horticulture majors and recommended for others who are training for such positions as County Agricultural Agents, Home Demonstration Agents, Club Leaders, or Smith-Hughes teachers. Mr. Yeager, Mr. Latimer. 2 lab.; 2 cr.

14. (XI). ELEMENTARY VEGETABLE GARDENING. Garden soils; testing and planting seeds, selection of varieties with reference to New Hampshire con-

ditions; construction and management of hotbeds and cold frames; fertilization, cultivation, and irrigation of the garden. Mr. Hepler. 2 lec.; 1 lab.; 3 cr.

27. (—). Landscaping the Home Grounds. The design and maintenance of small properties with emphasis on the principles of arrangement and the use and identification of plant materials in the beautification of home surroundings. Mr. Risley. 2 lec.; 1 lab.; 3 cr.

38. (0). Floral Arrangement. Floral design and the use of flowers in the home; practice in floral arrangement. A laboratory fee of $3 is charged. Prereq.: Permission of the instructor. 1 lab.; 1 cr.

40. (0). Amateur Floriculture. The fundamentals underlying the growing of plants; culture and classification of greenhouse and outdoor plant materials; study of garden design and the use of garden flowers and deciduous plant materials in beautifying the home; practice work in propagating plants, sowing seeds, transplanting, and other garden work. Not recommended for Horticulture majors. Mr. Risley. 2 lec.; 1 lab.; 3 cr.

44. Horticultural Practice. Seasonal practice work in fruit production, ornamentals, or vegetable production. For Seniors who are deficient in important skills. Mr. Yeager and staff. 1 to 5 cr.

46. (--). Outdoor Flowers. A study of the outdoor flowers that are commonly grown in the temporate region, including climatic requirements, principal varieties, and utilization. Mr. Risley. Prereq.: Hort. 2, 13, and Bot. 1. 2 lec.; 1 lab.; 3 cr.

48. Beekeeping. Habits of honey bees. assembling and use of hives, practice in handling bees. Production of commercial crops of comb and extracted honey, care and protection of bees during fall and winter, extraction of honey and preparation of comb honey and wax. Mr. Hepler. 1 lec.; 1 lab.; 2 cr.

51, 52. Advanced Horticulture. Courses to be elected by students majoring in Horticulture and special students to gain further knowledge and specialization in the field of fruit, flower, vegetable production, and beekeeping. Additional laboratory practice if desirable. Mr. Yeager and staff. Prereq.: Permission to register from the Department Chairman. 1 to 3 cr. per semester.

53. (XV). Pomology: Orchard Fruits. Fundamental principles and experimental data and their applications to orchard problems including the establishment of orchards, soil management, water and fertilizer requirements, mineral deficiencies, training and pruning, fruit bud formation, pollination, and fruit setting, thinning and winter injury. Mr. Latimer. 3 lec.; 3 cr.

54. (VII). Pomology: Small Fruit Culture. The culture and economic uses of the strawberry, raspberry, blackberry, blueberry, and grape. Each fruit is considered with relation to its history, propagation, planting, pruning, harvesting, marketing, insects, and diseases, and domestic uses. Mr. Latimer. 2 lec.; 2 cr.

55. Systematic Survey of Fruits. Important species of fruits and nuts of temperate regions and their botanical relationships. The history, distribution, and merits of each species, and the horticultural varieties developed from it. Mr. Latimer. 2 lab.; 2 cr.

57. (X). SYSTEMATIC SURVEY OF VEGETABLES. Important species of vegetables and culinary herbs and their botanical relationships. The history, distribution, and commercial merit of each species and the horticultural varieties developed from it. Mr. Hepler. 2 lab.: 2 cr.

58. (--). ERICACEOUS FRUITS. A course designed to cover both high and lowbush blueberries and cranberries, including culture, propagation, harvesting, and marketing. For majors in Horticulture. Mr. Smith. 2 lec.; 2 cr.

59. (—). GREENHOUSE MANAGEMENT. Modern methods of Greenhouse Management including soils, watering, costs of production and marketing, and fundamentals of plant behavior under glass. Varieties, culture, and enemies of greenhouse operations. Practical work in propagating, potting, and other greenhouse operations. Mr. Risley. 2 lec.; 1 lab.; 3 cr. Students may elect additional work on greenhouse crops under Hort. 51 and 52.

65. (XIX). COMMERCIAL VEGETABLE PRODUCTION. The management of commercial vegetable gardens. Important vegetables and their culture including a comprehensive review of recent experimental work. Mr. Hepler. Prereq.: Hort. 14. 2 lec.; 1 lab.; 3 cr.

91 92. (III) HORTICULTURE SEMINAR. A review of recent Horticultural literature and methods of investigational work. Students required to prepare and present papers on selected topics. Mr. Smith and Horticultural staff. For Seniors in Horticulture. Others by permission of the Department Chairman. 1 lec.; 1 cr.

94. (I). PLANT BREEDING. Application of the principles of genetics to practical plant breeding. Hybridization, chemical treatments, and selection as means of producing and improving varieties. Mr. Yeager. Prereq.: Zool. 49. 2 lec.; 1 lab.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

HOTEL ADMINISTRATION

RAYMOND R. STARKE, *Professor.*

The courses listed below are given primarily for students in Hotel Administration. Other students are invited to elect these courses with the permission of the instructor provided they have the prerequisites.

1. (XV). ORIENTATION. An introduction to Hotel Administration, including a history of hospitality over the world. Particular attention is paid to the origin, development, and organization of the hotel business in the United States. 2 lec.; ½ cr. *Required of Freshmen in Hotel Administration.*

5. (V). HOTEL OPERATION. This course deals with the problems of hotel management. Some subjects studied are the organization, personnel, and work of the departments, front office procedure, rate structure, and the methods of securing and financing a hotel business. The point of view of the resort operator is constantly compared with that of the man in the year-round hotel. B.Ad. 9-10 should precede or accompany this course. 3 rec.; 3 cr.

6. (V). **Hotel Public Relations.** The relations of the hotel with the public, either as prospective or present guests; sales promotion media and advertising. For Juniors and Seniors. Prereq.: Permission of the instructor. 2 lec.; or rec.; 2 cr.

Hotel Accounting. (See B.Ad. 1-2, 9-10.)

(12.) (0). **Financial Statements.** A study of financial reports and statements directed toward costs and percentages in hotel operations. The work is based on the Uniform System of Accounts for hotels as recommended by the American Hotel Association. Prereq.: B.Ad. 9 or H.Ad. 5. One 2 hr. rec.; 2 cr. *(This course will be offered in the fall semester of 1951-1952.)*

Elementary Drafting. (See Arts 20.)

Foods. (See Home Ec. 15-16, 49-50.)

23. (0). **Stewarding.** The management of the steward's department of a hotel, comprising the purchasing, storage, and issuing of foods, beverages, and supplies with the proper records to keep in connection therewith. This course will be given by an experienced steward. 2 lec. (One meeting on alternate weeks); 1 cr. (Not offered in 1951-1952.)

26. (I). **Hotel Engineering Problems.** The study of laundry practices and equipment; kitchen planning and efficient layout; a central cleaning system; water supply, purification, piping, fixtures, and disposal; fire protection, and other practical problems in operation and maintenance, 2 rec.; 1 lab.; 3 cr.

40, 42, 44, 46. (0). **Lectures on Hotel Management.** Delivered by representative and well-known men in the hotel business and allied fields. ½ cr. for each course.

HUMANITIES

Humanities 1-2. A course in general education involving the Departments of Languages, English, Music, The Arts, and Philosophy, and designed to give an appreciation of literature, the various arts, and philosophy. The course will operate within an historical framework, but is not intended to be an historical survey. Weekly lectures or demonstrations by members of the Humanities Division, readings, study of slides, films, recordings, museum trips, class recitations and discussions. Mr. Daggett, Mr. Maynard, and Mr. Walsh 1 lec. and 3 rec.; 3 cr. *(Not open to Freshmen.)*

INSTITUTIONAL MANAGEMENT

(See Other Programs of Study, page 71)

LANGUAGES

ERNEST A. BOULAY, *Assistant Professor;* CLIFFORD S. PARKER, *Professor;* JOHN S. WALSH, *Associate Professor;* JULIO BERZUNDA, *Assistant Professor;* JAMES C. FAULKNER, *Assistant Professor;* ALEXANDER P. DANOFF, *Assistant Professor;* ARNO K. LEPKE, *Assistant Professor.*

GENERAL LANGUAGE AND LITERATURE

Schedule the following courses as Lang. 1, etc.

1, 2. (IX). SURVEY OF GREEK AND ROMAN LITERATURE. The masterpieces of Greek and Roman literature in translation. Through the study of literature, the students will learn about the ancient civilizations from which much of our contemporary culture has come. A cultural course for the general student unprepared to read the original languages but desiring acquaintance with this important subject matter. A background course for majors in such subjects as English, History, Latin, or one of the modern languages and literatures. Continued in Languages 51, 52. 3 rec.; 3 cr.

51, 52, (—). SURVEY OF MODERN EUROPEAN LITERATURE. The Renaissance, classicism, romanticism, and realism studied as international movements. Stress will be laid, not upon the details of each national literature, but upon the interdependence of the literatures of the various countries. Conducted in English. Prereq.: Junior, Senior, or Graduate standing. 3 rec.; 3 cr.

73-74. (--). INTRODUCTION TO ROMANCE PHILOLOGY. The historical development of French and Spanish from Vulgar Latin. Phonology, morphology, syntax, semantics, etymology. Frequent reference is made to the spoken languages of today as well as to comparative semantics. Prereq.: one year of Latin. 3 rec.; 3 cr.

LANGUAGES-EDUCATION. (LANG-ED) (91). (VII). PROBLEMS IN THE TEACHING OF MODERN LANGUAGES IN THE HIGH SCHOOL. The special objectives, methods, and devices of modern language teaching in high school. For prospective teachers of French, German, and Spanish. Prereq.: Education 61 with grade of C or better (or one year of teaching experience) and one of the following courses: French 6, German 6, or Spanish 6. 3 rec.; 3 cr.

FRENCH

Schedule the following courses as Fr. 1, etc.

New students will be assigned to French 1, French 3, or French 5, on the basis of their performance in the French placement examination in Orientation Week.

*1-2. (XVI). ELEMENTARY FRENCH. Elements of French grammar, reading of simple prose, oral practice. 3 rec.; 3 cr. *Cannot be counted for major credit.*

*3-4. (XVI). INTERMEDIATE FRENCH. Review of most important rules of grammar; reading of a large amount of diversified French prose, partly in class, partly outside; oral practice. Principal objectives: (1) to give a solid foundation for further work in French; (2) to increase the facility and accuracy of students' reading and oral knowlwedge of French. (In section *a*, the reading material will be drawn from French-Canadian literature; in sections *b* and *c*, from modern French literature.) Prereq.: French 2 or its equivalent. 3 rec.; 3 cr.

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*No student from a foreign country will be allowed to register for any language course numbered 1-2 or 3-4 (except Greek 1-2, 3-4) in such student's native language.

No student who has taken any course in a foreign language numbered above 6 will be allowed to register for a course in the same language numbered 6 or lower.

Any exceptions to these rules must be approved by the Chairman of the Department and the Dean of the College of Liberal Arts.

5-6. (XVI). FRENCH CIVILIZATION AND LITERATURE. Principal objectives: (1) to study the history of French culture; (2) to increase students' ability to use and understand the French language; (3) to prepare for the study of French language and literature in more advanced courses; (4) to enable students to understand political, social, and cultural conditions in contemporary France. Prereq.: French 4. 3 rec.; 3 cr.

13-14. (XI). FRENCH COMPOSITION AND CONVERSATION. The use of written and spoken French taught by careful attention to pronunciation, composition, and grammar. To provide as much oral practice as possible the usual preparation for recitations will be partially replaced by three drill sessions per week. Prereq.: French 6. 6 rec.; 3 cr.
(Formerly French 11-12.)

51-52. (--). FRENCH LITERATURE AND CIVILIZATION OF THE MIDDLE AGES AND THE RENAISSANCE. The various forms and masterpieces of French literature from the beginning to the year 1600. Recommended for Seniors and Graduate Students. Mr. Parker. Prereq.: French 5-6 or the equivalent. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-52). (*Formerly French* 63-64)

53-54. (--). FRENCH LITERATURE OF THE SEVENTEENTH AND EIGHTEENTH CENTURIES. French literature from 1600 to the French Revolution. Topics studied include: the rise and development of the classical ideal, the masterpieces of the great writers of the age of Louis XIV, the decline and disintegration of classicism in the eighteenth century; the work and influence of Voltaire and Rousseau; the novel and drama in the eighteenth century. Prereq.: French 6. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-52)
(Formerly French 11-12)

55. (IX). FRENCH ROMANTICISM AND REALISM. The period from 1800 to 1870; Chateaubriand and Mme. de Stael; the Romantic School (Lamartine, Hugo, etc.); the historical novel and drama; early realists; romanticism and realism in work of Balzac; realism in the novel and drama (Flaubert, Augier, Dumas fils); Parnassian poetry (Leconte de Lisle, Baudelaire). Prereq.: French 6. 3 rec.; 3 cr. (Alternate years, not offered in 1951-52.)
(Formerly French 53)

56. (IX). FRENCH LITERATURE DURING THE THIRD REPUBLIC. Principal topics; Zola and naturalism; the reaction from naturalism; the poetry of Verlaine, Rimbaud, Mallarme, and Claudel; the relations of impressionism in art and music with literature; the literature of World War I; Proust and Gide; surrealism; conservatives and innovators between the two World Wars. The influence upon literature of contemporary events (such as the Dreyfus affair) and of political and social changes will be stressed. Prereq.: French 55. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.) *(Formerly French 54.)*

61-62. (XIX). ADVANCED FRENCH GRAMMAR AND COMPOSITION. A systematic study of French grammar with much oral and written practice. For students who wish to perfect their command of written and spoken French. Prereq.: French 14. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

92. (VII). ORAL FRENCH. Accuracy and facility in the use of oral French will be attempted through the study of phonetics and the use of dictation, conversation, the phonograph, and other devices. Prereq.: French 14 or 61. 3 lec. or rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

GERMAN

Schedule the following courses as Germ. 1, etc.

New students will be assigned to German 1, German 3 or German 5 on the basis of their score on the German reading examination in Orientation Week.

*1-2. (III). ELEMENTARY GERMAN. Elements of German grammar, reading of simple prose, oral practice. 3 lec. or rec.; 3 cr. *Cannot be counted for major credit.*

*3-4. (V). INTERMEDIATE GERMAN. Designed to increase students' facility in speaking and reading German. The conversational material will comprise idiomatic and colloquial German expressions. The reading material, which will include modern texts of varied content and progressive difficulty, will make the course of value for those who wish to use German in other academic fields, or who intend to take courses in German literature. Prereq.: German 2 or two years of high-school German. 3 lec. or rec.; 3 cr.

5-6. (--). CIVILIZATION AND LITERATURE. This course will give the student a clear and complete view of German literature. Its aim is to distinguish and clarify the principal directions of German literature from its origins to the present. Attention will be paid to the interrelation of history and literature. Collateral readings. Prereq.: German 4. 3 lec. or rec.; 3 cr. *(Formerly German 63-64.)*

7-8. (III). SCIENTIFIC GERMAN. For Pre--Medical students and majors in Physics, Chemistry, Geology, Forestry, Agriculture, and Engineering. To facilitate the reading of German scientific treatises. Prereq.: German 2 or two years of high-school German. 3 lec. or rec.; 3 cr. *(Formerly German 5-6.)*

13-14. (III). GERMAN CONVERSATION AND COMPOSITION. For students who desire a fluent practical command of spoken and written German. To provide as much oral practice as possible, the usual preparation for recitations will be partially replaced by three drill sessions per week. Prereq.: German 4. 6 rec.; 3 cr.

53-54. (--). GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. German literature from the beginning of the century to the advent of Romanticism Topics studied include: the rise and development of Classicism, the masterpieces of Lessing, Goethe, and Schiller, the decline and disintegration of Classicism in the eighteenth century. Collateral readings. Prereq.: German 6. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.)

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*No student from a foreign country will be allowed to register for any language course numbered 1-2 or 3-4 (except Greek 1-2, 3-4) in such student's native language.

No student who has taken any course in a foreign language numbered above 6 will be allowed to register for a course in the same language numbered 6 or lower.

Any exceptions to these rules must be approved by the Chairman of the Department and the Dean of the College of Liberal Arts.

55-56. (--). German Literature of the Nineteenth Century. The period from 1800 to the death of Nietzsche will be viewed in three aspects: the rise and development of Romanticism; the history of the drama as reflected in the works of Kleist, Grillparzer, Hebbel, Hauptmann; the novel with emphasis on the humorists (Richter, Grabbe, Meyer, Keller, Busch); Prereq.: German 6. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.) *(Formerly German 11,-12.)*

57-58. (XVII). Modern German Literature. The works of Grillparzer, Hebbel, Ludwig, Keller, Meyer, Hauptmann, Sudermann, as well as those of other authors whose activity extends to the present time. Prereq.: German 6. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

GREEK

Schedule the following courses as Gr. 1, etc.

1-2. (XV). Elementary Greek. Grammar, composition, translation. Prereq.: Permission of the instructor. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.)

3-4. (--). Intermediate Greek. Translation of several books of Homer's *Iliad;* work in grammar and word-derivation. Prereq.: Greek 2. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

ITALIAN

Schedule the following courses as Ital. 1, etc.

*1-2. (I). Elementary Italian. Elements of Italian grammar, reading of simple prose, oral practice. Pronounciation and comprehension of Italian songs. 3 lec. or rec.; 3 cr. *Cannot be counted for major credit.*

LATIN

Schedule the following courses as Lat. 1, etc.

New students will be assigned to Latin 1, Latin 3, or Latin 5 on the basis of their score on the Latin Reading Examination in Orientation Week.

1-2. (XIX). Elementary Latin. Elements of grammar, reading of simple prose. Study of the changes in meaning and form of English and Romance languages derivatives from Latin. 3 lec. or rec.; 3 cr. *This course cannot be used for major credit.*

3-4. (XIX). Intermediate Latin. A review of Latin grammar and vocabulary, followed by readings in prose and poetry. Prereq.: Latin 2 or the equivalent. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

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*No student from a foreign country will be allowed to register for any language course numbered 1-2 or 3-4 (except Greek 1-2, 3-4) in such student's native language.

No student who has taken any course in a foreign language numbered above 6 will be allowed to register for a course in the same language numbered 6 or lower.

Any exceptions to these rules must be approved by the Chairman of the Department and the Dean of the College of Liberal Arts.

5-6. (XIX). LATIN PROSE AND POETRY. Study of selections from Livy, Catullus, Ovid, Phaedrus, Martial, and the odes of Horace. Translation, lectures, and study of the influence of Latin on English poetry. Prereq.: Latin 4, or equivalent. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.)

53-54. (--). THE HISTORIANS. Livy, Suetonius, and Tacitus will be studied in selected works. Illustrated lectures and outside readings will serve to provide the historical, social, and political background of Rome essential to the student or teacher of Latin. Prereq.: Latin 6 or equivalent. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

55-56. (--).. THE GOLDEN AGE . A study of Roman literature of the classical period, particularly the works of Caesar, Cicero, and Virgil. Prereq.: Latin 6 or its equivalent. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.)

SPANISH

Schedule the following courses as Span. 1, etc.

New students will be assigned to Spanish 1, Spanish 3, or Spanish 5 on the basis of their score on the Spanish reading examination in Orientation Week.

*1-2. (X). ELEMENTARY SPANISH. Elements of Spanish grammar, reading of simple prose, oral practice, dictation. 3 rec.; 3 cr. *This course cannot be used for major credit.*

*3-4 (X). INTERMEDIATE SPANISH. Review of grammar, reading, composition, and conversation. A large part of the reading will be in the field of Latin-American literature and civilization. Prereq.: Spanish 2 or its equivalent. 3 rec.; 3 cr.

5-6. (--). SPANISH CIVILIZATION AND LITERATURE. This course will give the student a clear and complete view of Spanish literature. Its aim is to distinguish and classify the principal directions of Spanish literature from its origins to the present. Attention will be paid to the interrelation of history and literature. Collateral readings. Prereq.; Spanish 4. 3 lec. or rec.; 3 cr.

13-14. (V). SPANISH COMPOSITION AND CONVERSATION. The use of written and spoken Spanish taught by careful attention to pronunciation, grammar, and composition. To provide as much oral practice as possible, the usual preparation for recitations will be partially replaced by three drill sessions each week. Prereq.: Spanish 4. 6 rec.; 3 cr.

53. (--). THE DRAMA OF THE SIGLO DE ORO. Representative plays of Lope de Vega, Tirso de Molina, Guillen de Castro, Calderon, and other dramatists of the Golden Age of Spanish literature. Prereq.: Spanish 6. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.) *(Formerly Span. 9.)*

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*No student from a foreign country will be allowed to register for any language course numbered 1-2 or 3-4 (except Greek 1-2, 3-4) in such student's native language.

No student who has taken any course in a foreign language numbered above 6 will be allowed to register for a course in the same language numbered 6 or lower.

Any exceptions to these rules must be approved by the Chairman of the Department and the Dean of the College of Liberal Arts.

54. (--). The Picaresque Novel and the Works of Cervantes. Celestina, Lazarillo de Tormes, Don Quijote, and other novels of the sixteenth and seventeenth centuries. Lectures on Spanish civilization. Prereq.: Spanish 6. 3 lec. or rec.; 3 cr. (Alternate years, offered in 1951-1952.) *(Formerly Span. 10.)*

55-56. (--). Spanish Literature of the Nineteenth Century. Spanish literature from the close of Neo-Classicism to the Generation of '98. Topics studied include: Romanticism, Realism, Naturalism, Generation of '98, the novel, drama, and poetry. Collateral readings. Prereq.: Spanish 6. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.)

85-86. (--). Latin-American Literature. Selected writers of Latin-American countries who illustrate literature and social conditions in Central and South America. Certain works will be discussed in class while others will be assigned for collateral reading. Prereq.: Spanish 6. 3 lec. or rec.; 3 cr. (Alternate years, not offered in 1951-1952.) *(Formerly Span. 55-56.)*

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

LATIN

(See Languages)

LAW

(See Other Programs of Study, page 72)

MATHEMATICS

Dennis B. Ames, *Professor;* Marvin R. Solt, *Associate Professor;* William L. Kichline, *Associate Professor;* Donald M. Perkins, *Assistant Professor,* Richard H. Somers, *Special Lecturer;* John S. French, *Extension Lecturer;* James B. Crabtree, *Assistant Professor;* Robert L. Pease, *Assistant Professor* Robert O. Kimball, *Instructor;* Charles A. Sewell, *Instructor;* Frederick J. Robinson, *Instructor;* Sven R. Peterson, *Instructor;* Cornelius W. Schenck, *Instructor;* Tim C. Preston, *Extension Lecturer*

2. (XII), (2). (XII). Algebra. The elements of algebra. This course is intended primarily for students with only one entrance unit of algebra. *Not open to students eligible to enter Math. 11, except by permission of the department chairman.* Prereq.: One entrance unit of algebra. 3 rec.; 3 cr. *Does not count for major credit in Mathematics.*

9. (VIII). Solid Geometry. The elements of solid geometry. Prereq.: High-school algebra and plane geometry. 2 rec.; 2 cr. *Does not count for major credit in Mathematics.*

11. (XII), (11). (VI). Algebra. The elements of algebra. Prereq.: 3 entrance units of mathematics. 3 rec.; 3 cr. *Does not count for major credit in mathematics.*

13. (VIII), (13). (XII). Trigonometry. The elements of trigonometry, logarithms, complex numbers. Prereq.: Two entrance units of algebra or Math. 2; 3 rec.; 3 cr. *Does not count for major credit in Mathematics.*

14, (VI), (14). (XII). ANALYTIC GEOMETRY. The elements of analytic geometry. Prereq.; Math 13 and Math 11 or 2. 3 rec.; 3 cr.

16, VI), (16). (IV). CALCULUS I. An introduction to the differential and integral calculus. Prereq.: Math. 14 (may be taken simultaneously). 3 rec.; 3 cr.

17. (XII). CALCULUS II. Differential and integral calculus. Prereq.: Math. 16. 3 rec.; 3 cr.

18. (XII). CALCULUS III. Infinite series, Taylor's expansion, introduction to differential equations, hyperbolic functions, partial differentiation, multiple integrals. Prereq.: Math. 17. 3 rec.; 3 cr.

19. (VI). DIFFERENTIAL EQUATIONS. A first course in ordinary and partial differential equations. Prereq.: Math. 18. 3 rec.; 3 cr.

20. (VI). APPLIED MATHEMATICS. Fourier series, line and surface integrals, partial differential equations of mathematical physics and engineering, Bessel and Legendre functions, introduction to boundary value problems, vector analysis. Prereq.: Math. 19. 3 rec.; 3 cr.

30. (XXII). ASTRONOMY. A brief descriptive course. A study of the physical characteristics and motions of the members of the solar system and the sidereal universe. Illustrated lectures, recitations, and practice in the use of equatorial telescope. Mr. Solt. Prereq.: One year college physical science. 3 rec.; 3 cr.

34. MATHEMATICS OF FINANCE AND STATISTICS. Simple and compound interest, annuities, depreciation, evaluation of securities, building and loan associations, elements of life insurance, introduction to statistical methods and finite differences. Prereq.: Math. 2 or 11. 3 rec.; 3 cr.

38. HISTORY OF MATHEMATICS. An historical background and an appreciation of the development of various fields of mathematics. Designed especially for those preparing to teach mathematics in high school. Prereq.: Math. 17. 3 rec. 3 cr. (Alternate years, not offered in 1951-1952.) *May be counted as major credit only by students preparing to teach mathematics in the secondary schools.*

40. PROJECTIVE GEOMETRY. A first course in projective geometry. Prereq.: Math. 18. 3 rec.; 3 cr.

43-44. INTRODUCTION TO MATHEMATICAL STATISTICS. Frequency distribution, averages, measures of dispersion, measures of skewness, normal probability curve, correlation, sampling tests of significance. Prereq.: Math. 17. 3 rec.; 3 cr.

46. STATISTICAL QUALITY CONTROL. An introduction to the application of statistical methods to control of quality of manufactured products and to acceptance sampling. Averages, measures of dispersion and distributions. The Skewhart control chart, and the use of standard acceptance sampling tables. Mr. Kichline. *(Permission of instructor.)* 1 rec.; 1 cr.

47-48. INTRODUCTION TO ANALYSIS. The real and complex number systems, introduction to the theory of functions. Prereq.: Math. 18. 3 rec.; 3 cr.

49. ELEMENTARY DIFFERENTIAL GEOMETRY. A first course in differential geometry. Prereq.: Math. 19. 3 rec.; 3 cr.

61-62. Higher Algebra. The integers, the rational, real and complex number systems, congruences, theory of polynominal equations, theory of groups, vector spaces and transformations, matrices and determinants, rings, integral domains, fields, ideal theory, lattices and Boolean algebras. Prereq.: Math. 18. 3 rec.; 3 cr.

65-66. Advanced Calculus. Functions of several variables, continuity, limits; partial differentiation; multiple, line and surface integrals; uniform convergence, improper integrals; Gamma and Beta functions; Fourier series; introduction to functions of a complex variable. Prereq.: Math. 19. 3 rec.; 3 cr.

91. Mathematics-Education (Math-Ed). The aims and values of secondary-school mathematics; the recommendations of the national committee on mathematics requirements, and the State Board requirements; the subject matter and the sequence in which it should be presented in both junior and senior high schools; techniques and instructional aids used in teaching secondary-school mathematics; errors, testing program, remedial teaching. Students preparing to teach mathematics in high school should register for this course, it is a prerequisite for Supervised Teaching in Mathematics. Lectures, assigned readings, and discussions. Mr. Perkins. Prereq.: Ed. 61 and Math. 16. 3 rec.; 3 cr. *May be counted as major credit only by students preparing to teach mathematics in the secondary schools.*

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

MECHANICAL ENGINEERING

Edward T. Donovan, *Professor;* Edward L. Getchell, *Professor;* Lauren E. Seeley, *Professor;* E. Howard Stolworthy, *Associate Professor;* Tenho S. Kauppinen, *Assistant Professor;* Elias M. O'Connell, *Instructor;* William E. Clark, *Instructor;* William D. Clement, *Instructor;* Gardner Ladd, *Instructor;* Leonard A. Fisher, *Instructor;* H. Fletcher Knight, *Instructor;* Robert M. Jodrey, *Instructor.*

1-2 (X). Engineering Drawing. Fundamentals, including free-hand lettering, use of instruments, isometric drawing, and the solution of problems by the principles of descriptive geometry. Messrs. Kauppinen, Clement, Knight, Clark and Fisher. 2 lab.; 2 cr. Scheduled trips to near-by engineering works and factories will be conducted to illustrate further and to relate the classroom work to engineering practice. *There will be a small charge to defray the cost of transportation on these trips.*

3. (XIV). Machine Drawing. Application of the principles of engineering drawing to machine parts. Various pictorial systems as an aid in sketching. Reproduction methods and modern drafting room organizations. Commercial drafting room methods in sketching machine parts, drawing from sketches, and making tracings. Mr. Kauppinen. Prereq.: M.E. 1. 2 lab. 2cr.

4. (XIV). Kinematics. Motion in machine construction; belts and other flexible connectors; gear and gear teeth; wheels in trains; epicyclic trains; cams; instantaneous centers; linkwork, velocity, and acceleration diagrams. Mr. Kauppinen. Prereq.: M. E. 2 and Math 16. 1 rec.; 2 lab.; 3 cr.

7-8. (II). MECHANICS. A study of forces and moments of forces; determination of stresses in trusses and cranes; centroids and centers of gravity; rectilinear and curvilinear motion; translation and rotation of bodies; work, power, also impulse and momentum and energy. The application of mechanics to the determination of stress and strain in rigid bodies. The study of thin walled cylinders; riveted joints; torsion; transverse loading of beams; deflection in beams of all kinds; study of columns; compound stresses as applied to design of machine parts. Mr. Getchell and Mr. Kauppinen. Prereq.: Math. 17 and Phys. 21. 4 rec.; 4 cr.

9-10 (II). MECHANICS. Similar to Mechanical Engineering 7-8, but with those portions having application to the design of machine parts omitted. For Junior civil engineers. Mr. Kauppinen. Prereq.: Math. 17 and Phys. 21. M. E. 9. 3 rec.; 3 cr. M.E. 10. 3 rec.; 1 lab.; 4 cr.

11, 12. (VIII). MANUFACTURING PROCESSES. A study of methods used in the shaping, forming, and joining of metals and other engineering materials, including demonstration and practice in the use of machine tools and metal-forming equipment. Mr. Clark and Mr. O'Connell; 2 lab.; 2 cr.

15-16. (IX). MACHINE DESIGN. Application of the principles of mechanics to the design of machine elements, with the idea of manufacturing the parts in the most economical manner in the shops. General principles of design will be followed rather than the development of any particular system of procedure. Mr. Getchell and Mr. Kauppinen. Prereq.: M.E. 8. 3 lab.; 3 cr.

19, 20. (XIV). MECHANICAL ENGINEERING MATERIALS. The properties, uses and treatment of ferrous and non-ferrous metals and alloys, plastics, etc., including work in the testing of materials. Mr. Clement. M.E. 19, 2 rec.; 1 lab.; 3 cr. M.E. 20. 2 lab.; 2 cr.

21. (IX). HEAT POWER ENGINEERING. The fundamental theory of engineering thermodynamics and its applications to steam power plant and internal combustion equipment. For civil engineers. Mr. Donovan. Prereq.: Math. 17 and Phys. 22. 3 rec.; 3 cr.

23-24. (VIII). THERMODYNAMICS. The fundamental laws of thermodynamics and their relation to the operation of mechanisms using gases and vapors as their working substances. Mr. Donovan and Mr. Stolworthy. Prereq.: Math 17 and Phys. 22. 3 rec.; 3 cr.

27-28. (XVI). MECHANICAL LABORATORY. The apparatus and methods of testing power plant operation and equipment. Mr. Donovan. Parallel requirement: Enrollment in M.E. 23-24. 1 lab.; 1 cr.

29-30. (VI). MECHANICAL LABORATORY. Methods of investigating operation and testing of power plant equipment. Mr. Donovan. Parallel requirement: Enrollment in M.E. 23-24. 2 lab.; 2 cr.

31. (31). FORGING AND WELDING. Advanced work in forging and welding metals. A continuation of the work of M.E. 11 and 12 with some opportunity being provided for practice in forging and gas and electric welding. Prereq.: M.E. 11, 12. Mr. O'Connell. 2 lab.; 2 cr.

32. (32). MACHINE SHOP PRACTICE. Advanced work in the study of machine tools and their uses, production methods, inspection, and control. Prereq.: M.E. 11, 12. Mr. Clark. 2 lab.: 2 cr.

39. (IX). HEATING AND AIR CONDITIONING. Heat losses and ventilation requirements of buildings, and the design of specific heating and ventilating systems. Mr. Stolworthy. Prereq.: M.E. 24. 2 rec.; 2 cr.

40. HEATING AND AIR CONDITIONING. Present methods of heating and ventilating buildings. Mr. Stolworthy. Prereq.: Hotel Ad. 21, 22, or Phys. 2. 2 rec.; 1 lab.; 3 cr.

49. THESIS. An investigation or research of some mechanical engineering problem. Elective for Seniors in Mechanical Engineering. Prereq.: permission of the Department. 2 cr.

51. MECHANICAL LABORATORY. Performance studies of steam engines and turbines, nozzles, and condensers. Application of the laws of thermodynamics to steam power plant equipment. Mr. Donovan. Prereq.: M.E. 30. 2 lab.; 2 cr.

53-54. (XII). POWER PLANTS. A study of the steam generating power plant dealing with its equipment and costs. For mechanical engineers. Mr. Donovan. Prereq.: M.E. 24. M.E. 53: 2 rec.; 2 cr. M.E. 54: 1 rec.; 2 lab.; 3 cr.

55-56. (X). INTERNAL COMBUSTION ENGINES. Thermodynamics applied to spark ignition and compression ignition engines and gas turbines. Fuels, carburetion, fuel injection, combustion chambers, lubrication, cooling, and performance. Mr. Stolworthy. Prereq.: M.E. 8 and 24. 2 rec.; 1 lab.; 3 cr.

59, 60, 61, 62. STUDENT BRANCH OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS. An organization of Junior and Senior students. Preparation and presentation of addresses on Mechanical Engineering topics by members, and criticism by instructor of delivery, subject matter and terms used. Required by Juniors and Seniors in Mechanical Engineering. Mr. Clement. No credit.

65. (II). ENGINEERING ECONOMY. The principles which form the basis of engineering procedures for obtaining the highest ratio of utility to cost. Mr. Donovan. Prereq.: Senior standing. 3 rec.; 3 cr.

66. (II). INDUSTRIAL MANAGEMENT. Principles and methods of industrial management, designed to give students a working knowledge of modern industrial practice, with particular emphasis on the engineering viewpoint. Prereq.: Senior standing. Mr. Plaisted. 3 rec.; 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

MEDICINE

(See Pre-Medical Curriculum)

METEOROLOGY

(See Geology and Geography)

MILITARY SCIENCE AND TACTICS
AIR SCIENCE AND TACTICS

COL. WILMER S. PHILLIPS, Arty., *Professor;* LT. COL. ROBERT B. KNOX, USAF, *Professor;* LT. COL. PHILIP M. ROYCE, Inf., *Associate Professor;* MAJOR WENDELL P. KNOWLES, Arty., *Assistant Professor;* MAJOR JAMES P. FORSYTH, Inf., *Assistant Professor;* MAJOR EUGENE J. KELLY, USAF, *Assistant Professor;* CAPT. JAMES E. ARMSTRONG, Inf., *Instructor;* CAPT. THOMAS A. COOTEY, USAF., *Instructor;* CAPT. WALTER E. DREIBELBIS, USAF, *Instructor;* CAPT. FREDERIC D. INGERSOLL, USAF, *Instructor;* M/SGT. CLARENCE B. DAYTON, USAF, *Assistant;* M/SGT. RICHARD J. MONIHAN, Inf., *Assistant;* M/SGT. JAMES M. HUTTON, USAF, *Assistant;* M/SGT. JOSEPH A. WHITE, Inf., *Assistant;* M/SGT. WESLEY W. GIFFORD, USAF, *Assistant;* M/SGT. EARL CRABTREE, Arty., *Assistant;* M/SGT. ELWIN W. BISHOP, USAF, *Assistant;* SFC MANCIL L. THOMPSON, Arty., *Assistant;* SFC RICHARD H. THRASHER, CMP, *Assistant;* T/SGT. JOSEPH A. M. GAMELIN, USAF, *Assistant;* SGT. ROBERT E. ST. CYR, Inf., *Assistant;* SGT. ALVIN H. WILLIAMS, Arty., *Assistant.*

MILITARY SCIENCE AND TACTICS

Students enrolled in Army ROTC pursue MS 11-12 during the Freshman Year and either MS 21-22 (AAA) or MS 23-24 (Infantry) during the Sophomore Year.

M.S. 11-12 (FIRST YEAR BASIC, ARMY). Military Organization; Military Policy of the United States, National Defense Act and ROTC; Evolution of Warfare; Maps and Aerial Photographs; First Aid and Hygiene; Individual Weapons and Marksmanship; Military Problems of the United States; Leadership, Drill and Exercise of Command. Minimum of 3 hours of formal instruction. 3 cr.

M.S. 21-22 (SECOND YEAR BASIC, ANTIAIRCRAFT ARTILLERY). Introduction, Characteristics Capabilities and Limitations, and Service of the Piece, Antiaircraft Artillery Automatic Weapons and Guns; Leadership, Drill and Exercise of Command. Minimum of 3 hours of formal instruction. 3 cr.

M.S. 23-24. (SECOND YEAR BASIC, INFANTRY). Organization; Weapons; Marksmanship; Technique of Fire and Tactics of the Rifle Squad; Combat Formations; Scouting and Patrolling; Leadership, Drill and Exercise of Command. Minimum of 3 hours of formal instruction. 3 cr.

M.S. 31-32. (FIRST YEAR ADVANCED, ANTIAIRCRAFT ARTILLERY). Anticraft Artillery Basic Gunnery and Tactics; Communications; Individual Weapons and Marksmanship; Motors and Transportation; Organization; Troop Movements; Leadership, Drill and Exercise of Command; Continuation of Specialized Training. Elective course. Minimum of 5 hours of formal instruction. 6 cr.

M.S. 33-34. (FIRST YEAR ADVANCED, INFANTRY). Organization; Weapons; Gunnery; Communications; Combat Intelligence; Estimate of the Situation and Combat Orders; Field Fortifications; Tactics of the Rifle and Heavy Weapons Platoons and Companies; Leadership, Drill and Exercise of Command; Continuation of Specialized Training. Elective course. Minimum of 5 hours of formal instruction. 6 cr.

M.S. 41-42. (SECOND YEAR ADVANCED, ANTIAIRCRAFT ARTILLERY). Military Administration; Military Law and Boards; Military Teaching Methods; Psychological Warfare; Antiaircraft Artillery Gunnery, Material, and Advanced Tactics; Command and Staff; Combat Intelligence; The Military Team; New Developments; Supply and Evacuation; Field Artillery Capabilities and Employment; Geographical Foundations of National Power; Leadership, Drill and Exercise of Command. Minimum of 5 hours of formal instruction. 6 cr.

M.S. 43-44. (SECOND YEAR ADVANCED, INFANTRY). Military Administration; Military Law and Boards; Military Teaching Methods; Psychological Warfare; Organization; Command and Staff; Communications; Motors and Transportation; Supply and Evacuation; Troop Movements; New Developments; The Military Team; Tactics of the Infantry Battalion in Attack and Defense; Geographical Foundations of National Power; Leadership, Drill and Exercise of Command. Minimum of 5 hours of formal instruction. 6 cr.

AIR SCIENCE AND TACTICS

Students enrolled in Air Force ROTC pursue AS 15-16 during the Freshman Year and AS 25-26 during the Sophomore Year.

A.S. 15-16 (FIRST YEAR BASIC, AIR FORCE) . Military Power in the Modern World; Foundations of Military Power; Global Geography; Maps and Aerial Photographs; Personal Maintenance; Command and Leadership Exercises. Minimum of 3 hours of formal instruction. 3 cr.

A.S. 25-26. (SECOND YEAR BASIC, AIR FORCE). Aerodynamics and Propulsion; Meteorology; Navigation; Applied Air Power; Command and Leadership Exercises. Minimum of 3 hours of formal instruction. 3 cr.

A.S. 35-36. (FIRST YEAR ADVANCED, AIRCRAFT MAINTENANCE ENGINEERING). Psychology of Leadership; Logistics; Air Operations; Command and Leadership Exercises; Specialization in Aircraft Maintenance Engineering. Elective course. Minimum of 5 hours of formal instruction. 6 cr.

A.S. 37-38. (FIRST YEAR ADVANCED, ADMINISTRATION AND LOGISTICS). Psychology of Leadership; Logistics; Air Operations; Command and Leadership Exercises; Specialization in Administration and Logistics. Elective course. Minimum of 5 hours of formal instruction. 6 cr.

A.S. 45-46. (SECOND YEAR ADVANCED, AIRCRAFT MAINTENANCE ENGINEERING). Officer Development; Military Administration; The Inspector General; Military Teaching Methods; Military Law; Air Force Management; Career Development; Command and Leadership Exercises; Continuation of Specialized Training in Aircraft Maintenance Engineering. Minimum of 5 hours of formal instruction. 6 cr.

A.S. 47-48. (SECOND YEAR ADVANCED, ADMINISTRATION AND LOGISTICS). Officer Development; The Inspector General; Military Teaching Methods; Military Law; Air Force Management; Career Development; Command and Leadership Exercises; Continuation of Specialized Training in Administration and Logistics. Minimum of 5 hours of formal instruction. 6 cr.

MUSIC

Karl H. Bratton, *Professor;* Robert W. Manton, *Professor;* Irving D. Bartley, *Assistant Professor;* George E. Reynolds, *Assistant Professor;* Donald E. Steele, *Assistant Professor;* Elaine R. Majchrzak, *Instructor;* William Marshall, *Instructor;* Joseph L. Davis, *Instructor;* Allan Owen, *Instructor.*

Music Organizations

Registration for musical organizations courses should be completed during the registration period. These courses cannot be used to satisfy major requirements except in the Music-Education Curriculum. These organizations may be taken either for audit or for credit. Registration in musical organizations must be approved by the Department Chairman.

1. (1). (0). University Band. Open to all undergraduates on basis of individual tryouts. The University Band furnishes music for the R.O.T.C. drills, all athletic events at home, and also gives concerts during the college year. Course credit is based on the extent and quality of participation. A student who participates in both marching and concert band activities receives full credit; one who limits his activities to either marching or concert band receives half credit. Mr. Reynolds. Prereq.: Permission of the instructor. 2 rec.; ½-1 cr.

2, (2). (0). University Symphony Orchestra. Open to all students on a basis of individual tryouts. The Orchestra gives several concerts during the year and also accompanies the vocal groups and solo instrumentalists on various occasions. Mr. Reynolds. Prereq.: Permission of instructor. 2 rec.; ½ cr. *(Formerly Music 9.)*

3W, (3W). (0). Women's Glee Club. Open to all students interested in singing who fullfill the requirements of a tryout. Recommended for all women voice majors. Miss Majchrzak. Permission of the instructor. 2 rec.; ½ cr.

3M, (3M). (0). Men's Glee Club. Open to all students interested in singing who fullfill the requirements of a tryout. Recommended for all men voice majors. Mr. Bratton. Prereq.: Permission of the instructor. 2 rec.; ½ cr.

5. (5). (0). University Concert Choir. An advanced choral group devoted to the study and performance of the best classical and modern choral literature. Recommended for men and women voice majors. Mr. Bratton. Prereq.: Permission of instructor. 2 rec.; ½ cr.

7. (7). (0). Ensemble. Small groups of instrumentalists and vocalists organized to provide advanced students experience in such groups as the Madrigal Singers, quartets, (string, brass, woodwind, voice) and other combinations. Prereq.: Permission of the instructor. 2 rec.; ½ cr.

Not more than 4 credits may be earned in four years by students in musical organizations to be counted towards graduation. An exception to this will be members of the R.O.T.C. Band and Music majors. Music majors may earn not more than 8 credits in musical organizations.

MUSIC

Applied Music

Schedule the following courses as Mus. 23, etc.

All candidates for a degree with a major in Applied Music (Option II) must take an entrance examination before the staff of the Department of Music to be judged as to their competence to become Music majors. The examination may be taken any time before the beginning of the student's Sophomore Year.

Lessons in Applied Music are based on ½-hour private instruction. One semester hour of credit will be given for one lesson: two semester hours of credit will be given for two lessons. Five one-hour practice periods will be allotted to each student. Necessary supplementary practice periods must be sought out by the music students themselves. The special semester fee for Applied Music is $25 for one lesson a week, and $50 for two lessons a week. These fees include the use of practice room for the required preparations.

Majors in Applied Music are required to present 16 semester hours in applied music taken over a period of four years. Two lessons per week are required each semester. Four semester credits taken in the Freshman Year are regarded as prerequisite to entrance into the Applied Music option.

Registration in Applied Music is open to all students in the University, but it is subject to approval by the Department Chairman. A student may register for the same course in successive semesters.

†23, (23). (0). Piano. The methods of presentation and the material used vary with each pupil and his degree of advancement. With beginners, training is given in the fundamentals of pianoforte technique and in the reading of keyboard music. As early as is practicable emphasis is placed on musical values, musicianship, and sound piano technique. For this purpose, the literature employed is selected from the masters. Musical understanding is developed and quality of performance is stressed. With the attainment of advanced technique the student's repertory is broadened to include works of all periods of literature: pre-Bach, J. S. Bach, C. P. E. Bach, Scarlatti, Haydn, Mozart, Beethoven, the romantic composers, the post romantics, and present-day contemporary composers. Mr. Steele, Mr. Bartley, Mr. Davis. 1 or 2 lessons; 1-2 cr.

†24, (24). (0). Organ. Students must possess reasonable keyboard facility before attempting the study of organ and should secure the permission of the organ instructor before enrolling for the course. The material used in the organ course includes Graded Materials for the Organ by Rogers, preludes and fugues by Bach, sonatas by Mendelssohn as well as compositions by contemporary American composers. Since the aim of the course is primarily to prepare students for playing in church services, emphasis will be laid on hymn playing and also on providing suitable organ accompaniment for soloist, quartet, or chorus. During the Junior and Senior Years the larger compositions by Franck, Widor and Guilmant will be studied. Mr. Bartley. 1 or 2 lessons; 1-2 cr.

†25, (25). (0). Violin. Lessons in violin playing are adjusted to the individual needs of the pupil. A sound technical foundation is imparted with special stress on clear, resonant tone production, accurate intonation, fluency,

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†Students registered in formal and applied music courses are required to attend all student and faculty recitals as a part of the assigned work of the course.

and velocity. Technical exercises, studies, and solos are selected to correct the student's deficiences and to develop and promote his talents and artistic self-expression. Solos are selected from the best in violin literature and are studied as concert pieces and also as applications of the numerous items of basic technique. Mr. Marshall. 1 or 2 lessons; 1-2 cr.

†26, (26). (0). VOICE. Instruction in voice will seek to develop those qualities which are essential for intelligent interpretations, such as correct posture, breathing, pure tone, resonance, clear enunciation, and technical facility. Each voice is given the treatment best suited to its individual needs. A higher ideal than the perfection of mere mechanical skill is sought, namely a musicianly style of singing and a thorough appreciation of the best works of the masters, both classic and modern. Mr. Bratton and Miss Majchrzak. 1 or 2 lessons; 1-2 cr.

†27, (27). (0). VIOLONCELLO, VIOLA, STRINGBASS. The course consists of instructions in tuning, bowing, and in positions, as well as a thorough grounding in technical studies, solos, and ensemble literature. Mr. Marshall. 1 or 2 lessons; 1-2 cr.

†28, (28). (0). WOODWIND. Courses in the technique and literature of clarinet, flute, oboe, bassoon, and saxophone or any woodwind instrument are given. Mr. Owen. 1 or 2 lessons. 1-2 cr.

†29, (29). (0). BRASS. Instruction will be offered for any of the following instruments: trumpet, trombone, French horn, baritone, and tuba, or any brass instrument. Correct tone production, articulation, and musical interpretation are stressed. Mr. Reynolds. 1 or 2 lessons; 1-2 cr.

†30, (30). (0). PERCUSSION. The study and mastery of the snare drum rudiments including the 266 American drum rudiments as adopted by the National Association of Rudimentary Drummers. The technique, tuning, and sticking of the pedal and hand timpani. Cymbals and all other percussion effects (claves, maracas, triangle, tambourine, woodblock, chimes, etc.). The playing of the glockenspiel, bells, or bell lyra, as well as xylophone is offered under this classification. Mr. Reynolds. 1 or 2 lessons; 1-2 cr.

THEORY AND COMPOSITION

†*9-10. (VII). SIGHTSINGING, EAR TRAINING, AND DICTATION I. A course designed to provide intensive training in the acquisition of the basic essentials of music. Special emphasis is placed upon development of rhythmical sense, the identification and singing of intervals, accurate response to melodic, harmonic, and rhythmical dictation, the basic laws of musical notation, familiarity with the pianoforte, elementary keyboard harmony, knowledge of scales, terminology, and elements of musical form. Recommended for students who wish to prepare themselves for intelligent listening to music and for participation in music activities such as glee clubs, etc. 5 labs. 1 cr. *(This course does not count for major credit.)*

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†Students registered in formal and applied music courses are required to attend all student and faculty recitals as a part of the assigned work of the course.

*Music 9-10 is normally prerequisite to Music 11-12, but the two may be taken simultaneously if the approval of the instructors in both courses is secured.

11-12, (XIII). Harmony I. The fundamental principles of the theory of music are embodied in the study of Harmony. It treats of the different chords in their natural and combined relationships. The subdivisions are as follows: intervals, triads, inversions of the same, the entire seventh chord family and its inversion will form the content of the course. Recommended for students who wish to prepare themselves for intelligent listening to music and for participation in musical activities such as glee clubs, orchestras, etc. Mr. Manton. Prereq.: Mus. 9-10 or its equivalent. 3 rec.; 2 cr.

†**13-14, (XV.) Sightsinging, Ear Training, and Dictation II. An extension of Music 9-10. Further training in basic elements of music. Continued emphasis on the rhythmical and melodic phenomena of the art and development of acuity and accuracy in perception and response. Prereq.: Mus. 9-10 and 11-12. 2 rec.; 1 cr.

†15-16, (V). Harmony II. Harmony and beginning counterpoint designed to supplement the technical training begun in Music 11-12. Simple counterpoint in two parts and in both the sixteenth century and the eighteenth century style will be studied parallel to acquisition of such new harmonic material as chromatically altered chords, pedal point, and modulation. Further harmonic dictation together with contrapuntal dictation and keyboard harmony. Contrapuntal studies will include three-part writing as its final objective. Mr. Manton. Prereq.: Mus. 11-12; 13-14. 3 rec.; 2 cr.

†41-42. (XX). Principles of Conducting. The development of conducting—physical aspects, equipment of conductor, fundamental gestures or beats used, function of the left hand, basic problems of baton technique, full and condensed scores—will be analyzed. Score reading and development of baton technique effects. Knowledge of technical terms determining tempo, variation of tempo, character and traditions of characteristic standard band and orchestral works. Study of essential choral techniques with emphasis on phrasing, fermata, and diction. Ear training in relationship to part-singing and analysis of choral works for more intelligent interpretation. Problems of choir organization and psychology of the rehearsal. Practice conducting throughout the course. Participation in group singing is recommended. Actual conducting experience with the University Band, University Symphony Orchestra, and choral groups. The student conductors will be chosen from this group. Mr. Owen. 2 rec.; 1 cr. (Plus laboratory experience with music organizations.)

†51-52. (XI). Counterpoint, Canon, and Fugue. This seminar course will include free counterpoint in three and four parts, double counterpoint, the writing of simple two-part inventions, choral preludes, etc. The canonic and fugal studies will be based largely upon the works of Bach and will have as their objectives the composition of a two-voiced, a three- and a four-voiced fugue. Mr. Manton. Prereq.: Mus. 16 or permission of instructor. 3 rec.; 2 cr.

†71-72. (I). Composition. Form is the foundation, the skeleton, and support to imagination and expression in music. Through a study of form the student, in creating, learns to control his media of expression. The var-

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†Students registered in formal and applied music courses are required to attend all student and faculty recitals as a part of the assigned work of the course.

**Music 13-14 is normally prerequisite to Music 15-16, but the two may be taken simultaneously if the approval of the instructors in both courses is secured.

ious harmonic variations, *rondo* and *sonata* forms will, in turn, serve as models for composition. Prereq.: Mus. 51-52 or permission of the instructor. Mr. Manton. 2 rec.; 2 cr. (Not offered in 1951-1952.)

†97-98. (XXI). ORCHESTRATION AND CHORESTRATION. This course offers the study of instruments and methods of combining them into coherent arrangements arriving at successful balances for the band and orchestral arranger. The characteristics, range, and tone quality of the instruments are fully covered and transcriptions are made. Striking orchestral effects from the pens of our greatest composers are studied. Chorestration is offered during the latter part of the second semester. The techniques of writing for solo voice, for mixed voices, men's and women's voices, are taken up through the medium of arrangements, and original work. Mr. Reynolds. Prereq.: Permission of the instructor. 2 rec.; 2 cr.

HISTORY, LITERATURE AND APPRECIATION

†33-34. (34), (33). (XII). THE APPRECIATION OF MUSIC. Fundamentally a course to develop intelligent listening through formal analysis of the irreducible minimum of great musical masterpieces. A selection of the most important works of Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Mendelssohn, Chopin, Liszt, Brahms, Franck, Tschaikowsky, d'Indy, and many others, analyzed by the students and the instructor and played several times in the classroom. Mr. Manton, Mr. Marshall. Two 1½ hr. rec.; 2 cr. *(Music 33 must precede Music 34.)*

†43. (III). SURVEY OF MUSIC IN AMERICA. A survey of the development of music in the United States from Colonial times to the present day. The various influences such as the English tradition, the German era, the French impressionistic influence and finally the quest for an American style will be presented and discussed together with the music of the most representative composers. Mr. Manton. 2 rec.; 2 cr.

†45, 46. (XIX). MUSIC HISTORY AND LITERATURE. A study of the actual systems, spirit, and content of the music of a period rather than resumes of biography and critical evaluations. Music of the Ars Nova period, the Netherlands and Roman masters, the Renaissance, opera and oratorio, Bach and Handel, the classic and romantic composers and the music of the late nineteenth century. Mr. Manton. 2 rec.; 2 cr.

†47, 48, (0). SURVEY OF PIANOFORTE LITERATURE. A course which covers, through lecture and demonstration, the history and development of keyboard literature from Bach to the present. A discussion and performance of the works of Bach, the Sonatas and Concertos of Haydn, Mozart, Beethoven, Schubert, the Romantic composers, and of contemporary writers. Mr. Steele. 1 rec.; 1 cr.

†80. (XI). TWENTIETH-CENTURY MUSIC. A study of the music of the twentieth century, including its literature, its trends, and an analysis of techniques, style, forms and expressions. 2 rec.; 2 cr.

†81. (IX). THE DEVELOPMENT OF THE SOLO ART-SONG. A comprehensive history of the development of the art-song in every country beginning with

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†Students registered in formal and applied music courses are required to attend all student and faculty recitals as a part of the assigned work of the course.

the sixteenth century polyphonic madrigals for the solo singer, up to and including the songs of the twentieth-century composers. This includes composers such as Dowland, Purcell, Gretry, Hopkinson. MacDowell, Hindemith, and Barber and emphasizes the German *Lieder* of Schubert, Schumann, Brahms, Wolf, and Richard Strauss. The Song-Cycle will also be discussed. Miss. Majchrzak. 2 rec.; 2 cr.

†82. (IX). OPERA AND ORATORIO. A history of the opera and the oratorio beginning in Italy in the sixteenth century and including the French and German schools culminating in modern opera and oratorio. This covers the development of the recitative and aria, styles and trends. Miss Majchrzak. 2 rec.; 2 cr.

†(83). (III). THE LIFE AND WORKS OF BEETHOVEN. This course will include a study of the piano sonatas, symphonic works, and the string quartets of Beethoven. Lectures, analysis, reports, required readings, and listening will constitute the techniques of presenting the course. Mr. Manton. 2 rec.; 2 cr.

MUSIC EDUCATION

The Department of Music offers a four-year curriculum for teachers of elementary and secondary school music. (See Music-Education Curriculum.)

Schedule these courses as Mu-Ed. 91, etc.

†Music-Education (MU-ED.) 91. (IX). PROBLEMS IN THE TEACHING OF ELEMENTARY SCHOOL MUSIC. Aims, scope, and organization of materials and activities in the elementary schools in keeping with modern trends in educational philosophy. Particular attention will be given to the child voice. its care and development. A thorough study and demonstration of materials and methods for the various grades will be made. Observation of elementary school music. Mr. Davis. Prereq.: Educ. 61. 3 rec.; 3 cr.

†Music-Education (MU-ED.) (92). (XIII). PROBLEMS IN THE TEACHING OF SECONDARY SCHOOL MUSIC. The application of principles of education to the music curriculums of the junior and senior high school. Consideration will be given to the adolescent voice and the classification of voices; the selection of materials for study, performance, and discriminative listening; and building a course of study on student needs and interests. Implementation of instrumental music at the intermediate and secondary levels. Observation of music programs in secondary schools. Mr. Davis. Prereq.: Educ. 61. 3 rec.; 3 cr. *(This is a first semester course).*

†Music-Education (MU-ED.) 95. (III). TEACHING OF STRINGED INSTRUMENTS. A demonstration course in class-teaching of stringed instruments designed to simulate classroom situations and methods as far as possible. Mr. Davis. 2 rec.; 2 cr.

†Music-Education (MU-ED.) (96), (VII). TEACHING OF WOODWIND INSTRUMENTS. A study of correct tone production and technique of woodwind instruments. Materials and procedures for class and individual instruction will be emphasized. Consideration will be given to the school band as a concert organization. Mr. Owen. 2 rec.; 2 cr. *(This is a first semester course).*

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†Students registered in formal and applied music courses are reguired to attend all student and faculty recitals as a part of the assigned work of the course.

†Music-Education (Mu-Ed.) 97. (XI). Teaching of Brass and Percussion Instruments. A study of correct tone production and technique of brass instruments and of rudimentary percussion technique. Materials and procedures for class and individual instruction will be emphasized. Consideration will also be given to the school band as a marching unit and to elementary instruction in drum-majoring. Mr. Reynolds. 2 rec.; 2 cr.

NATURE STUDY

(See Biology, Botany, Forestry, and Zoology.)

NURSING

(See Nursing Curriculum.)

OCCUPATIONAL THERAPY

(See The Arts.)

These courses are for students in the Occupational Therapy Curriculum.

Schedule as O. T. 1, etc.

2. (0). Crafts. A series of minor crafts using various media and techniques adapted for use in the practice of Occupational Therapy. Miss Drew. 2 lab.; 2 cr. *(Formerly O. T. 1.)*

4. (XIII). Crafts. Stresses the therapeutic use of crafts, such as leatherwork, chip carving, and book binding. Miss Tinsley. 3 lab.; 3 cr.

5, 6. (V). Crafts. Covers the use of metal, stenciling, dyeing, hooking, weaving, chair seating, and other popular crafts used in Occupational Therapy. Miss Drew and Miss Tinsley. 3 lab.; 3 cr.

7-8. (XI). Elementary Processes in Wood and Plastics. A basic course in design and construction of wood and plastic objects, including a study of the nature and properties of these materials and the processes of cutting, shaping, fitting, and finishing. Practice and demonstrations cover the operation of hand and power tools, safety precautions and other problems of shop management to be encountered in Occupational Therapy. Mr. Brett. 2 lab.; 2 cr.

9. (VIII). Lettering and Printing. Freehand lettering, hand- and power-press printing; operation of various duplicating devices; silk screen process; poster design. A survey of graphic arts methods and processes as employed in Occupational Therapy. Mr. Brett. 2 lab.; 2 cr. *(Formerly O. T. 10.)*

15-16. (0). Ceramics, Modeling, and Puppetry. Design and construction. Methods of preparing and working clay, and the uses of pottery equipment best suited to application in Occupational Therapy work; hand puppets and marionettes. Mr. Scheier. 2 lab.; 2 cr.

23-24. (0). Elementary Drawing and Design. Exercises in drawing, painting, design, and block printing. Creative activity as a background for craft study and for its therapeutic value. Outdoor sketching. Mr. Hatch and Mr. Perrin. 2 lab.; 2 cr.

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†Students registered in formal and applied music courses are required to attend all student and faculty recitals as a part of the assigned work of the course.

45. (0). Elementary Library Methods. A course in library methods giving a brief survey of the detail involved in the management of a small institutional library. Miss McCurry. 1 lab.; 1 cr.

(46). (XXI). Elementary Theory of Occupational Therapy. History and evolution of Occupational Therapy including its present use in the field of medicine. Professional and hospital ethics and etiquette Instruction trips to hospital and treatment centers. Miss Drew. 3 lec. or rec.; 3 cr.

47. (X). Theory of Occupational Therapy. Organization and administration of Occupational Therapy in the various fields of medicine. Instruction trips to hospitals and treatment centers. Miss Drew. Prereq.: O. T. 46. 2 lec.; 2 cr.

48. (X). Theory of Occupational Therapy. Uses of techniques and adaptive equipment as applied to Occupational Therapy. Analyses of treatment media. Instruction trips and pre-clinical training arranged. Miss Drew. Prereq.: O. T. 47. 3 lec. or rec.; 3 cr.

49-50. (0). Clinical Subjects. Basic information concerning the etiology, pathology, symptoms, and treatments of disease. Introductory lectures to acquaint students with medical terminology are followed by a study of general medical and surgical conditions, orthopedics, ophthalmology, otology, and psychiatry. University Physician and visiting specialists. Prereq.: Zool. 17-18, O. T. 46 and 47 (which may be taken concurrently.) 2 lec.; 2 cr. (Alternate years; not offered in 1951-1952.)

PHILOSOPHY

Donald C. Babcock, *Professor.*

1, 2. (XIII). Introduction to Philosophy. Designed for orientation in the field of Philosophy, this course gives some time to each of several subjects associated with philosophic thoroughness and breadth of thought. Among these are: (1) ways of acquiring knowledge; forms of logical thought; (2) the nature of ethics; (3) the history of ideas; (4) chief hypotheses concerning the nature of mind and matter. Wherever possible, practical application to the problems of human living will be made. Mr. Babcock. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

4. (XV). Ethics. Human beings behave as if there were standards by which conduct could be evaluated. What are "values"? What standards are there? What significance have they? Are "right" and "wrong" in any sense universal? How can we find out? This course deals with these questions, but makes application constantly to everyday problems of individual and social living. Mr. Babcock. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

5, 6. (--). Philosophy of Religion. This course undertakes three tasks: (1) to investigate the philosophic basis of religion in general, without particular reference to any specific religion; (2) a more detailed study of theism as the most fruitful variety of religious thought; (3) presentation of the Sacramental Theory of values, as a contribution to meet the need for an ordered thought-way for the contemporary world. Mr. Babcock. 2 lec. or rec.; Prereq.: Any course in Philosophy. *(Not open to Freshmen.)*

11, 12. (XI). History of Religions. Religion as an historic force in society. The nature of religion, its origins, and early development treated in connection with primitive social history. A study of the principal religions of the world, exclusive for the most part, of Christianity. Chief attention given to Hinduism, Buddhism, Zoroastrianism, Confucianism, and Mohammedanism. The history, literature, and philosophy of the Oriental civilizations and culture as a background. Mr. G. R. Johnson. 3 lec. or rec.; 3 cr. (Alternate years; offered in 1951-1952.) *(Not open to Freshmen.)*

13, 14. (XI). Historical Origins and Development of Christianity. The life, literature, religion, and social development recorded in the Old Testament are studied as a cultural background. An investigation of the historic data existing concerning the life, character, and teaching of Jesus. The growth and expansion of the Christian movement. Designed to furnish students an opportunity to evaluate their own religious heritage in the light of contemporary thought, and to make special study of particular intellectual problems. Mr. G. R. Johnson. 3 lec. or rec.; 3 cr. (Alternate years; not offered in 1951-1952.) *(Not open to Freshmen.)*

15. (V). Philosophic Values in the Bible. A course intended first of all to make the student familiar with the actual contents of the Bible, especially its time-honored and formerly commonly quoted passages. Attention will be directed to the relation between the great utterances in the Bible and the persistent problems of human thought and living. All sectarian preference will be excluded. Thoughtful appreciation of a great cultural heritage is the result sought. Mr. Babcock. 3 lec. or rec.; 3 cr. (Not offered in 1951-1952.) *(Not open to Freshmen.)*

16. (V). Philosophic Values in General Literature. A continuation of Philosophy 15, except that literature other than that of the Bible will be studied. English and American authors will be chiefly used. The richness of Biblical allusion in secular literature will be noted. The inclusive purpose of the course is to attain familiarity with the literary and philosophic sources of the modern world, and to render them usable in common life. Mr. Babcock. 3 lec. or rec.; 3 cr. (Not offered in 1951-1952.) *(Not open to Freshmen.)*

19. (XV). The Liberal Tradition in Western Thought. This course deals with the nature of the important but elusive movement of thought called liberalism; in its several aspects — intellectual, religious, economic, political, etc. It will be concerned with the limits of freedom, the nature of democracy, and anti-democratic forces. American patterns of liberalism, with their English antecedents. The modern dilemma of liberalism in a changing social order is referred to throughout. Mr. Babcock. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

51, 52. (0). Seminar. Intensive study of a selected topic or field. Designed for those who wish to cultivate the philosophical way of life for further self-improvement. Open only to students who have had a course in philosophy, and by permission of the instructor. Mr. Babcock. 2 lec. or discussions; 2 or 3 cr. (Not offered in 1951-1952.)

55, 56. (IX). Philosophy of History. (1) Some of the less obvious aspects of chronology; periodizing as a means of interpreting history; (2) historical geography; (3) culture-history, including the historical side of everyday life; (4) the philosophy-of-history proper; or a study of some of the ways in which history as a whole has been viewed, including both deterministic theories and the study of biography. Mr. Babcock. 3 lec. or discussions; 3 cr. For Juniors and Seniors.

PHOTOGRAPHY

(See The Arts.)

PHYSICS

Frederic A. Scott, *Professor;* Horace L. Howes, *Professor;* William H. Hartwell, *Associate Professor;* Harry H. Hall, *Associate Professor;* David G. Clark, *Assistant Professor;* Alden R. Kuhlthau, *Assistant Professor;* John A. Lockwood, *Assistant Professor;* John A. Karas, *Assistant Professor;* Frank R. Woods, *Instructor.*

1-2. (X). Introductory Physics. Mechanics, properties of matter, heat, magnetism, electricity, wave motion, sound and light. Demonstration lectures, laboratory and recitation. A knowledge of high-school algebra and plane geometry is essential. This course is not intended for students in the College of Liberal Arts who expect to complete major requirements in Physics. 2 lec.; 1 rec.; 1 lab.; 4 cr.

21-22. (X). General Physics. Mechanics; heat; light; wave motion; sound; electricity and magnetism. Prereq.: Math. 17-18 either passed or taken concurrently. 2 lec.; 3 rec.; 1 lab.; 6 cr.

43-44. (0). Intermediate Laboratory. This course is intended to augment the student's contact with physical equipment and improve his laboratory technique in precise measurements. Experiments performed largely have bearing on medical problems. Electricity and optics are stressed to a large degree. Prereq.: Phys. 1, 2. Open only to pre-medical students. 1 lab.; 1 cr.

64. (XXI). Electrical Measurements. Experiments on the use of precision potentiometers, the constants of sensitive galvanometers, low resistance by Kelvin double bridge, high resistence by the method of leakage and by direct deflection, the use of alternating current bridges for measuring capacity, self and mutual inductance and frequency, the characteristics of certain photoelectric cells. Prereq.: Phys. 21-22. 1 lec.; 1 lab.; 3 cr.

81. (IX). Optics. Geometrical optics covering first order theory of optical systems; aberrations; theory of stops; photometry. Physical optics covering wave propagation; interference; diffraction; polarization. Prereq.: Math. 19 passed or taken concurrently. 3 rec.; 1 lab.; 4 cr.

82. (IX). Heat. Thermometry, pyrometry, calorimetry, radiation, heat conduction and thermodynamics. Prereq.: Phys. 21-22; Math. 19, 20 passed or taken concurrently. 3 rec.; 1 lab.; 4 cr.

83-84. (I). Theory of Electricity and Magnetism. Electrostatics, magnetostatics, dielectic theory, electromagnetics, magnetic circuits, alternating currents, complex impedance, thermoelectricity, electro-magnetic field. Prereq.: Phys. 21-22; Math. 19, 20 passed or taken concurrently. 3 lec.; 1 lab.; 4 cr.

85-86. (XIII). PHYSICAL MECHANICS An analytical treatment of classical mechanics covering the methods of statics and dynamics of particles and rigid bodies, both in a plane and in space, and the application of these methods to physical problems; oscillations; constrained motion; generalized coordinates and Lagrange's Equations. Prereq.: Math. 19-20 passed or taken concurrently.

91-92. (IX). MODERN PHYSICAL THEORIES. Recent developments in Physics, including photoelectric effect, quantum theory, X-rays, relativity, nuclear theory, cosmic rays. Prereq.: Phys. 83-84 or the equivalent. 3 rec.; 3 cr.

93-94. (XI). THEORETICAL PHYSICS. An introduction to the application of mathematics to physics, including such topics as advanced dynamics, theory of vibrations, fluid mechanics, kinetic theory, Maxwell's field equations, etc. Prereq.: Math. 19-20 and Phys. 85-86 or its equivalent. 3 cr.

95-96. (0). ADVANCED LABORATORY. Laboratory work of research type. Special problems are assigned to the individual student who is placed on his own. Prereq.: Senior standing in Physics in College of Technology. 2 lab.; 2 cr.

97. (IV). ELECTRICAL DISCHARGE THROUGH GASES. Properties of gaseous ions, motion of electrons in gases, the discharge tube, positive and negative rays, thermionic emission, photo-electricity, critical potentials, etc. Prereq.: Phys. 83-84. 3 rec.; 1 lab.; 4 cr.

99. (--). SPECIAL TOPICS. A course designed to cover any selected topics not sufficiently well covered in a general course. Prereq.: Math. 19-20 passed or taken concurrently. Senior standing in Physics in College of Technology. 1, 2, or 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

POLITICAL SCIENCE

(See GOVERNMENT.)

PHYSICAL EDUCATION FOR MEN

CARL LUNDHOLM, *Professor, Director of Physical Education and Athletics;* HENRY C. SWASEY, *Associate Professor;* PAUL C. SWEET, *Associate Professor;* CLARENCE E. BOSTON, *Assistant Professor;* JOSEPH J. PETROSKI, *Assistant Professor;* EDWARD J. BLOOD, *Instructor;* HORACE MARTIN, *Instructor;* ANDREW MOORADIAN, *Instructor.*

REQUIREMENTS: All Freshmen and Sophomore men students and first-year students in the Two-Year Curriculum in Agriculture are required to register for Physical Education. Each student must provide himself with an activity suit consisting of a grey sleeveless jersey, gray trunks, white woolen socks and rubber-soled tennis or basketball shoes. This suit must be worn at all classes in Physical Education.

PHYSICAL EDUCATION

31, 32. Physical Education. Development of the organic system generally; stimulation of the neuromuscular system through physical activity; encouragement of a proper attitude toward play; development of an appreciation of physical activities as worthwhile leisure-time recreation. *Required of Freshmen.* 2 periods; ½ cr. Students passing will get a grade of cr.

33, 34. Physical Education. Continuation of 31, 32. *Required of Sophomores.* 2 periods; ½ cr. Students passing will get a grade of cr.

TEACHER PREPARATION COURSES

Required of students registered in the University Physical Education Teacher Preparation Curriculum for Men. Elective for other students by special permission from the Director of Physical Education and Athletics.

23. (IX). Principles of Physical Education. The aims, objectives, and principles of Physical Education and the historical factors which have influenced the physical life of nations. Mr. Lundholm. 3 lec.; 3 cr.

40. Winter Sports. Instruction and practice in ski jumping, downhill, slalom, and cross country skiing, and snowshoeing. Conditioning of men, waxing of skis, and selection and care of equipment. The organization and management of winter carnivals and other competitions. Special emphasis on methods of teaching skiing. 1 rec.; 2 lab.; 2 cr. (Not offered in 1951-1952.)

45. (XV). Football. A history of football with consideration of its educational implications and an analysis of the various systems of play. Instruction in team and individual offensive and defensive fundamentals. The rules, theory, strategy, generalship of team play, and the responsibilities of the coach for the physical welfare of the team. 1 rec.; 2 lab.; 2 cr.

46. (VII). Baseball. Theoretical and practical consideration of the basic principles of batting and fielding; the fundamentals of each position; special stress on problems involving team play, coaching methods, physical conditioning, and rules; a history of the game with a consideration of its educational values. 1 rec.; 2 lab.; 2 cr.

47. (XI). Track and Field Athletics. Instruction and practical demonstrations in starting, sprinting, middle distance and distance running, relay racing, hurdling, high, and broad jumping, pole vaulting, shot putting, discus, hammer and javelin throwing. Methods of preparing contestants for the various events. 1 rec.; 2 lab.; 2 cr.

48. (VII). Basketball. History of basketball with a consideration of its educational values. Theory and practice in the fundamentals of individual offense and defense. The various styles of team offense and defense and rules of the game. Problems in handling and conditioning a team. 1 rec.; 2 lab.; 2 cr.

61. (V). Problems of Teaching in Physical Education. Methods and materials of instruction, theories of play, and actual practice for the successful teaching of recreational activities in school, on the playground, and in the community. Studies of activities adapted to different levels of maturity. 3 rec.; 3 cr.

63. (XV). CARE AND PREVENTION OF INJURIES. Nature and causes of injuries incident to physical activities, the common hazards of play, and preventive measures for children and athletes are discussed. First aid principles are presented. Elective for Seniors who have taken one of the following: P.E. 40, 45, 46, 47, 48; 2 rec.; 2 cr.

65. (V). ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. The aims and objectives of health and physical education. Organization and supervision of a complete unified program of health and physical education including the legal aspects, intra-mural and inter-scholastic athletics, medical problems, budgeting, financing, maintenance of equipment, publicity programs, and office management. Each student will be given an opportunity to serve on a committee to draw up an original program of health and physical education in a theoretical or actual situation found in some secondary school. Prereq.: Zool. 17-18; P.E. 23 and 61; and two courses in the coaching of sports. These last may be taken concurrently. 3 rec.; 3 cr.

EDUCATIONAL-PHYSICAL EDUCATION. (Ed-PE) 93 (93). DIRECTED TEACHING IN PHYSICAL EDUCATION. Given in the Department of Physical Education and Athletics for Men. Prereq.: Zool. 17-18; P.E. 23 and 61. The student must have completed the methods course in the sport which he is directing or take the course concurrently. 2 to 4 cr.

EDUCATION-PHYSICAL EDUCATION. (Ed-PE) 94. SUPERVISED TEACHING IN PHYSICAL EDUCATION IN THE FIELD. An opportunity under joint supervision of the Physical Education and Education Departments, to coach athletics in secondary schools and to assist in supervising a recreational program. Prereq.: Zool. 17-18; P.E. 23, 65 and methods courses in those sports in which the students intend to become actively engaged. 3 cr.

PHYSICAL EDUCATION FOR WOMEN

MARION C. BECKWITH, *Associate Professor;* EVELYN BROWNE, *Assistant Professor;* CAROLINE S. WOOSTER, *Assistant Professor;* CAROL E. GORDON, *Instructor;* BARBARA K. NEWMAN, *Instructor;* MYRA K. STOWE, *Instructor;* MARGARET M. BADGER, *Instructor;* PATRICIA F. GEORGE, *Instructor.*

The Department of Physical Education for Women aims to develop in each individual the physical, social, and mental qualities which will enable her to meet successfully the demands of modern society. The courses include recreative and leisure-time activities, vigorous team sports and gymnastics, rhythmic and dance activity, and the opportunity to participate in club activities which are provided primarily for the more highly skilled. This program is supplemented by the extra-curricular competition sponsored jointly by the Women's Recreation Association and the Department.

REQUIREMENTS: All women students are required to complete at least one credit of physical activity for each of the first six semesters they attend the University. Freshmen women should register for P.E. 1, 2; Sophomores for P.E. 3, 4; and Juniors for P.E. 5, 6. One additional activity (it may be a club) may be elected each semester for additional credit. Except by special permission, the same activity shall not be credited more than twice.

PHYSICAL EXAMINATION. Each student must, before entering, have had a physical examination by a physician. A posture test will be given by the

Physical Education staff. Individual gymnastics is required of each Freshman whose physical condition indicates this need. Students with physical disabilities must follow the same procedure as other students including registration for Physical Education credit. In most cases, modified activities are recommended by the University Physician.

Motor Ability Test. All students are expected to take the Humiston Motor Ability Test at the time of entering the University. In addition, this test is used as a partial basis for determining club membership, substitutions, and credit for Advanced Instruction. (See Advanced Instruction.)

Advanced Instruction. To provide for the more highly skilled student and to encourage the interest and ability of the less skilled, the Department of Physical Education for Women includes in its program numerous club and interclass activities in which Advanced Instruction is given by a member of the teaching staff.

Membership: Open to any University student.

Qualifications: Club standards or membership of class squad.

Credit: Upperclassmen may, if the results of the motor ability test show they are qualified to do so, substitute: (1) certain club activities for their 3 hours of Physical Education requirement, or (2) Durham Reelers or interclass activities for their rhythmics (except Sophomore P.E. majors.)

Clubs: Dance Club — Instructor, Miss George; Riding — Instructor, Miss Martin; Riflery — Instructor, Miss Browne; Dance Workshop — Instructor, Miss George; Durham Reelers — Instructor, Miss Badger: Skiing — Instructor, Miss Newman; W.R.A. — Instructor, Miss Gordon and staff.

Women students following any Teacher Training Curriculum in the University are urged to elect for required Physical Education the following activities: Folk dancing, community games, volleyball, hockey, basketball, and American country dancing.

Required Costume and Equipment. Special gymnasium uniforms consist of blue cotton tennis-type dress and shorts, white socks, and regulation gymnasium sneakers. Students are required to furnish their own individual equipment for such activities as tennis, skiing, and skating. Equipment is furnished for golf, fencing, badminton, hockey, archery, lacrosse, riflery, and softball.

1, 2, 3, 4, 5, 6. Physical Education. Students should register for one activity (meeting two hours a week) from the lists below. One additional hour of fundamentals (Freshmen) or rhythmics (Upper-classmen)* will be arranged by the Department. 3 hours; 1 cr.

ACTIVITY COURSES

(elect one a quarter)

First Quarter: Archery, badminton (elem. + inter.), dance composition, golf, modern dance, hockey, individual gym, riding (beg. + elem. + inter.), speedball, tennis (elem. + inter.), touch football.

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*See Advanced Instruction for substitutions.

Second Quarter: Basketball, badminton (elem. + inter.), modern dance (elem. + inter.), community games, individual gym, Am. country dance, folk dancing, fencing, riding (beg. + elem. + inter.), riflery, skating, skiing (beg. + elem.), stunts & tumbling.

Third Quarter: Badminton (elem. + inter.), dance composition, fencing, folk dancing, modern dance (elem. + inter.), community games, individual gym, Am. country dance, riding (beg. + elem. + inter.), skiing (beg. + elem. + inter.), riflery, stunts & tumbling, volleyball.

Fourth Quarter: Archery, badminton, dance composition, golf, individual gym, riding (beg. + elem. + inter.), lacrosse, softball, tennis (elem. + inter.).

Required of Freshmen, Sophomores, and Juniors. 3 periods; 1 cr.

7, 8. PHYSICAL EDUCATION. Elect courses from the list under P.E. 1, 2. Elective for Seniors. 2 hours. 1 cr.

11, 12, 13, 14, 15, 16, 17, 18. PHYSICAL EDUCATION. Elective courses open to Freshmen, Sophomores, Juniors, and Seniors respectively may be chosen from the lists under 1, 2, 3, 4, 5, 6. 2 hours; 1 cr.

THEORY COURSES

23. (IX). PRINCIPLES OF PHYSICAL EDUCATION. See course description under Department of Physical Education for Men.

24. (IX). ORGANIZED CAMPING. The methods, objectives, and purposes of organized camping for groups; standards for organized summer camps, facilities, equipment, food, sanitation, health, and safety requirements; departments, programs, and leadership qualifications. Mrs. Wooster. Elective for Sophomores, Juniors, and Seniors. 3 lec. or rec.; 3 cr.

(36). (XI). RECREATION LEADERSHIP. Organization, program planning, and administration of social recreation, clubs, and playgrounds; philosophy of recreation. Miss Badger. Elective for Sophomores, Juniors, and Seniors. 2 lec. or rec.; 1 lab.; 3 cr.

53. 54. (X). SURVEY OF DANCE. A survey of methods, materials and techiques in teaching dance as well as a history of dance as an art and as a phase of eduction. Includes instruction in performance and teaching of social and modern dance, first semester; in folk and square dancing, second semester. Miss George. Prereq. or concurrent to 53: Modern Dance (elem. + inter.) Open to Physical Education majors or by permission of instructor. 1 lec.; 2 lab.; 2 cr.

55. (V). REMEDIAL GYMNASTICS. The adaptation of exercise to individual needs, capacities, and limitations; causes and treatment of physical abnormalities. Theory and technique of massage. Mrs. Wooster. Prereq.: Zool. 17-18. 2 lec. or rec.; 2 lab.; 3 cr.

56. (XIII). HEALTH EDUCATION. A general health course designed to acquaint the student with principles, teaching methods, and materials of health education and hygiene in the school. It includes instruction in safety education, first aid, physical inspection, medical treatment aand prevention of disease. Miss Stowe. Open to Physical Education Majors. Prereq.: Zool. 17. 3 lec. or rec.; 3 cr.

63, 64. (VII). THE THEORY AND COACHING OF TEAM SPORTS FOR WOMEN. The methods involved in the teaching of team sports and lead-up games with emphasis on coaching methods and techniques of officiating. Includes discussion of equipment, history. tactics, and rules of each sport. Miss Gordon. Prereq.: Elementary courses in team sports. 2 lec. or rec.; 2 lab.; 2 cr.

66. (XIII). ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. Administrative relationships and methods in the conduct of physical education and health education in the secondary schools. Preparation of general administrative policies; facilities, and equipment. Miss Browne. 3 lec.. 3 cr.

73, 74. (XI, IX). THE THEORY AND COACHING OF INDIVIDUAL SPORTS FOR WOMEN. A study of the advanced techniques and methods involved in the teaching of tennis, badminton, and skating, first semester, and skiing, golf, and archery, second semester. Coaching methods and materials will be emphasized. The history, equipment, courtesies, rules, and tactics of each sport will be discussed. Miss Beckwith, Miss Browne. Prereq.: Elementary work in the courses listed above. Open to Senior majors or others by permission of instructor. 1-2 lec. or rec.: 1-2 lab.; 1-2 cr.

P.E.-Ed 91. (IX). PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. The methods, material and organization of a comprehensive program of activities for use primarily in the elementary schools. Miss Newman. 3 lec. or rce.; 3 cr.

Ed.-P.E. (92), 92. (0). DIRECTED TEACHING OF PHYSICAL EDUCATION FOR WOMEN. Opportunity for teaching Physical Education activities under direction, primarily in the elementary and secondary schools. Recreation majors do their practice work in near-by clubs and community centers. Miss Newman. Prereq.: P.E.-Ed. 91 or concurrently. 1 lec. or rec.; 2-5 lab.; 3-6 cr.

POULTRY HUSBANDRY

WINTHROP C. SKOGLUND, *Professor;* RICHARD C. RINGROSE, *Associate Professor;* FRED E. ALLEN, *Associate Professor;* ALAN C. CORBETT, *Assistant Professor.*

2. (VII). FARM POULTRY. The general principles of Poultry Husbandry and their practical application with emphasis on factors of culling, breeding, housing, feeding, marketing, diseases and parasites, incubation and management. Mr. Skoglund. 2 lec.; 1 lab.; 3 cr.

6. (XV). POULTRY FEEDING. The principles of feeding; analysis of recent experimental work and current feed problems. Mr. Ringrose. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-1952.)

7. (--). POULTRY HOUSING. Design and construction of poultry houses and equipment; costs of materials; management principles. 1 lec.; 1 lab.; 2 cr. (Alternate years; offered in 1951-1952.)

17. (XV). POULTRY BREEDS AND JUDGING. Theory and practice in selection of poultry for egg and meat production. A judging team participates in an intercollegiate contest. Mr. Skoglund. 2 lec.; 1 lab.; 3 cr.

18. (--). Incubation and Brooding. The principles involved in incubation and brooding of poultry; embryonic development. Students individually operate incubators and care for groups of chicks. Mr. Skoglund. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-1952.)

19. (--). Poultry Marketing. The preparation of poultry and eggs for market. Egg qualities and grades, candling and packaging; egg and poultry market conditions; practical instruction in killing, picking, and dressing. Mr. Ringrose. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-1952.)

20. (--). Poultry Diseases. The anatomy of the fowl; diseases and parasites encountered in poultry practice; methods of prevention and control. Mr. Corbett. 3 lec.; 1 lab.; 4 cr. (Alternate years; offered in 1951-1952.)

23, 24. Poultry Practice. Practice work at the University Poultry Plant in the hatching, rearing, and care of chickens. Mr. Skoglund. Five hours a week of practical work. 2 cr. (Note: By permission, students with previous practical poultry experience may substitute 2 semester credits of electives for this course.)

26. (--). Poultry Management. The application of successful business principles to poultry farming; study of surveys and production costs. As a part of the laboratory work, visits are made to numerous poultry farms in order to study various types of enterprises. Mr. Skoglund. 2 lec.; 1 lab.; 3 cr. (Alternate years; not offered in 1951-1952.)

27, 28. Poultry Seminar. Students abstract experimental data and report on various current topics. Department staff. 1-hour conference; 1 cr.

29. (XIX). Poultry Breeding. The genetic principles involved in breeding for egg and meat production, including practical application and demonstration. 2 lec.; 2 cr. (Alternate years; not offered in 1951-1952.)

53, 54. Poultry Problems. Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solution. Department staff. 1 to 3 cr.

56. (--). Turkey Production. Subject matter covered includes varieties and their commercial inportance; breeding methods, including the National Turkey Improvement Plan and Record of Performance; brooding and rearing methods; feeding, housing, and management practices. Mr. Ringrose. 2 rec.; 2 cr. (Alternate years; offered in 1951-1952.)

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

PSYCHOLOGY

Herbert A. Carroll, *Professor;* George M. Haslerud, *Associate Professor;* Paul H. McIntire, *Instructor;* Robert J. Dowd, *Instructor;* Dorothy M. Kohl, *Instructor;* Warren C. Bower, *Instructor;* Roy H. Cooley, *Instructor;* Francis G. Hugo, *Instructor.*

1-2. (VI). General Psychology. The systematic study of human behavior, especially with reference to the fundamental principles governing the development of the individual, learning, thinking, emotion, motivation, sensation and perception, and individual differences. Emphasis is directed toward the development of Psychology as a science. Mr. Dowd and Miss Kohl. 3 lec.; 3 cr. *This course cannot be used to satisfy major requirements.* Primarily for Freshmen and Sophomores, others require permission from the Chairman of the course.

32. (XII). INDUSTRIAL PSYCHOLOGY. The psychological principles involved in the selection and placement of personnel, the development and maintenance of morale, and the training and education of the employee. Although this course is open to students in any area of specialization, the content and problems are directed essentially toward the Hotel Administration Curriculum. Prereq.: Psych. 1. 3 lec or rec.; 3 cr. *Not open to Freshmen.* (Formerly Psych. 33.)

47, (47). (XXI). MENTAL HYGIENE. An examination of the fundamental emotional satisfactions desired by human beings and a consideration of the several ways in which these desires are thwarted. The mental conflicts growing out of such thwartings and ways of resolving them will be the central theme of the course. Specific applications of the principles of mental health will be made to the problems of college students. Mr. Carroll. 3 lec.; 3 cr. *Not open to Freshmen. (This course cannot be counted for major credit.)*

48. (XI). PSYCHOPATHOLOGY. The distortion of the psychological functions of perception, association, memory, judgment, and thinking as found in the maladjusted individual in need of institutional care. The symptoms distinguishing the various types of mental disorders and the more common forms of the psychoses and neuroses are presented to enable the student to recognize typical cases. Prereq.: Psych. 47. 3 lec. 3 cr. *Not open to Freshmen.*

51. (IX). PSYCHOLOGY OF CHILDHOOD. The mental processes and reactions of the normal child from birth to adolescence studied in order to obtain a comprehensive understanding of the development of the personality of the child. Special emphasis is placed on problems of parents and teachers and the importance of childhood for later adjustment. Mr. Haslerud. Prereq.: Psych. 1. 3 lec.; 3 cr.

52. (I). PSYCHOLOGY OF ADOLESCENCE. An examination of the physical, psychological, and social development of the individual during the period between childhood and maturity, and the implications for the individual, parent, teacher, and community of the problems characteristic of this period. Prereq.: Psych. 2 3 lec.; 3 cr. *(Not open to those who have credit for Ed. 42.)*

57. (XXI). EXPERIMENTAL PSYCHOLOGY. A study of experimental work in Psychology, supplemented by class experiments. Emphasis will be placed on scientific method and experimental procedure. Mr. Haslerud. Prereq.: Psych. 2. 1 lec.; 2 lab.; 3 cr.

58. (IX). PSYCHOLOGY OF LEARNING. A study of experiments on the modification of behavior with emphasis on the practical implications for more insights, guided learning, better memory, and extended transfer. Mr. Haslerud. Prereq.: Psych. 2. 3 lec. 3 cr.

63. (V). INDIVIDUAL DIFFERENCES. A study of individual differences with special emphasis on intellectually gifted and mentally subnormal children. Prereq.: Psych. 2. 3 lec.; 3 cr.

67. (VII). Statistics in Psychology. A study of the problems and methods involved in the statistical treatment of quantitive data in Psychology. Both the computation and interpretation of elementary statistical measures will be stressed. Mr. Dowd. Prereq.: Psych. 2. 2 lec. or rec.; 1 lab.; 3 cr.

74. (I). Psychology of Personality. A scientific approach to the analysis of personality in terms of structure, development, classification, and methods of measurement. Prereq.: Psych. 2 and 47. 3 lec.; 3 cr.

78. (XI). Physiological Psychology. A study of the organic bases of behavior. Psychologically relevant topics concerning the nervous system, endocrine glands, sense organs, etc., will be considered. Mr. Haslerud. Prereq.: Psych. 2. 3 lec.; 3 cr.

83. (XI). Systematic Psychology. A critical examination of the points of view of the various schools of Psychology. Considerable attention is given to the contributions which the more important of these schools have made to contemporary thought in Psychology. Prereq.: Psych. 2. 3 lec.; 3 cr.

89, (89). (0). Mental Hygiene for Teachers. A study of the fundamental needs of human beings, with special emphasis on the mental and emotional conflicts of secondary-school students arising from the thwarting of these needs. Ways of recognizing these conflicts by their manifestations, and of helping students to resolve them will be treated extensively in the course. Attention will also be given to the mental hazards of the teaching profession. Prereq.: Psych. 1 or equivalent. 3 cr. *Not open to students who have completed Psych. 47.*

98. (0). Seminar in Psychology. Mr. Carroll. Prereq.: 15 semester credits in Psych. 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

PUBLIC SPEAKING

(See English)

RADIO

(See English)

RELIGION

(See Philosophy)

SECRETARIAL STUDIES

(See Economics and Business Administration)

SOCIAL SCIENCE

The course listed is given under the auspices of the Division of Social Science of the Faculty of the College of Liberal Arts. This Division includes the Departments of Economics and Business Administration, Government, History, Hotel Administration, Psychology, Sociology, and the Department of Home Economics in the College of Agriculture.

81, (81). Undergraduate Internships. Actual field work in a department of the state or local government. The work will be in charge of the department or agency to which the student is appointed. Arrangements for each student will be in charge of the Chairman of the Department involved or his representative. Prereq.: Background work for the internships, substantial work in Govt., Econ., B.Ad., Hist., or Soc. For Juniors and Seniors. Not more than 16 credits. No more than 9 credits may be counted toward the completion of major requirements.

SOCIAL SCIENCE

(See Social Service Curriculum)

SOCIOLOGY

Raymond E. Bassett, *Professor;* Charles W. Coulter, *Professor;* Herbert J. Moss, *Associate Professor;* A. Melville Nielson, *Assistant Professor.*

Juniors and Seniors wishing to elect one or more courses in Sociology should especially consider Soc. 33, *Cultural Anthropology;* Soc. 34, *The Immigrant and the Negro;* Soc. 37, *Rural Sociology;* Soc. 52, *Population Problems;* Soc. 71, *Crime and its Social Treatment; and* Soc. 72, *The Family. The courses numbered 1 and 4 are exploratory courses intended for Freshmen and Sophomores only.*

1. (VIII). Principles of Sociology. An introductory survey course presenting Sociology as the most recent major discipline to adopt the method of natural science. Numerous field studies are described which have provided data on which current knowledge of human group relationships is based. Several problems making use of demographic and sociometric data are assigned. Group, community, culture, and social institutions are central topics of the course. Mr. Bassett and Mr. Nielson. 3 lec. or rec.; 3 cr. *For Freshmen and Sophomores. (May not be counted for major credit.)*

4. (VIII). Problems of Social Disorganization. The social factors involved in alcoholism, broken families, law breaking, poverty, vagrancy, etc., and in maladjustment to bodily defect, chronic illness, or old age. The relation of personal, institutional, and community disorganization to social and individual pathologies. The extent of each type of problem in the U. S. Attempts to isolate causes. Current treatments and their effectiveness. Mr. Bassett and Mr. Nielson. 3 lec. or rec.; 3 cr. *For Freshmen and Sophomores. (May not be counted for major credit.)* (Not open to students who have credit for Soc. 41.)

33. (V). Cultural Anthropology and Ethnology. (1) A comparative study of primitive folk-ways, institutions, and social organization, marriage, economic activities, religion, property inheritance and folklore; culture and the principles of its development; the significance of primitive culture for an understanding of contemporary civilization. (2) A comparative study of peoples; environmental factors, societal effect of invasion; colonization, and linguistic fusions; race and class struggles; jingoism, race relations in mid-European territory and in the Far East; the problem of world peace. Mr. Coulter. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

34. (V). The Immigrant and the Negro. Race problems in the United States: the position of the Negro in American Society; problems of segregation; Negro organizations; effects of legislation and education in resolving the issues. Immigrant heritages, loyalties, and groupings with resulting sectionalization of American life. Mr. Coulter. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

39. (XV). Rural Sociology. Farmers and villagers of the modern town-country rural community, their origins, characteristics, and group life. The organization, recent changes, and trends in rural institutions such as the home, school, church, and agencies for recreation, health, and social welfare. Neighborhoods and other informally organized rural groups. Interrelationships of town and country. Mr. Bassett. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

43. (XI). Community Organization. The contemporary U. S. city. Forces bringing about the location of commercial, industrial, and various residential units. Interpersonal communication as a unifying factor among competing social institutions. The functions of newspaper, radio, magazines, etc., in integrating large communities. The emergence of civic leaders and and the roles they play. Mr. Nielson. 3 lec. or rec.; 3 cr. *(Not open to Freshmen.)*

44. (XI). Social Psychology. The effects of group situations on recall, perception, attitudes, and various overt behaviors. Factors in morale; hypotheses of conforming behavior; reactions to social frustration: factors in prejudice; effects of mass communication; stereotypes; propaganda; measurement of public opinion; critical social situations. Mr. Bassett. *For Sophomores, Juniors, and Seniors.* Prereq.: Soc. 1 or Psych. 1. 3 lec. or rec.; 3 cr. *(Formerly Sociology 2.)*

52. (0). Population Analysis. A seminar course in demography using as its principal materials data from the U. S. Census of Population and U. S. Vital Statistics. Growth and levelling of city and state populations; distribution of such factors as age, sex, marital status, and years of schooling; differential birth and death rates; real and apparent changes in causes of death; international and interstate migration, and theories advanced to explain geographical mobility. Training in statistics not required. Mr. Bassett. *For Juniors and Seniors.* 3 lec. or rec.; *(Formerly Sociology 22.)*

71. (XIII). Crime and Its Social Treatment. The increase, extent, and more popular theories of crime and delinquency, juvenile and adult. Case studies of individual delinquents with special reference to the influence of family and neighborhood environments; typical social situations and their influence; programs for the social treatment of crime, the reorganization of reformatory institutions; classification of offenders for separate treatment; the "honor system," limited self-government, parole and probation, and the juvenile court as agencies for the prevention of delinquency. Mr. Coulter. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

72. (XIII). The Family. The rise of the marriage institution and the family; the present American family, its functions and adjustments; effects of urbanization; divorce, desertion, changing status of women, child welfare, and related modern problems; a consideration of recent research into factors predictive of successful marriage. Mr. Coulter. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

73. (III). An Introduction to Social Work and Public Welfare. The nature of social work; history of social work; contrasting techniques of family welfare assistance programs (Old Age Assistance, Aid to Needy Blind, Aid to Dependent Children); direct relief; Social Security legislation; intergovernmental relationships and responsibilities; the organization and administration of public welfare in the State of New Hampshire. Mr. Nielson. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

75. (IX). Methods of Social Research. Practice in computation and use of half a dozen simple statistical tools widely used in social research, followed by consideration of sampling, schedule construction, mail questionnaires, sociometric and sociographic devices; the planning of field studies and the interpretation of data. Mr. Bassett. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

84. (0). Methods of Social Progress. Efforts to improve social conditions and attain a larger measure of social justice; community experiments; development of modern social legislation; application of principles of insurance to social problems; various forms of mutual aids and philanthropy; endowments and special foundations. Mr. Coulter. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

87. (0). The Church in American Society. Contemporary organizations for worship in the community, their correlation, functions, and problems; the rise of the church and its relation to labor, the state, school, social welfare agencies; significance to the community of its organization and financing; church federation and union. Mr. Coulter. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

88. (XV). Recreation and Leisure. Problems arising from the increase of leisure time in modern society; typical leisure-time activities; theories of play; practical training programs in recreation; the function of leadership; analysis of types and qualities of leadership as exhibited by typical leaders; the material and program of leadership training. Mr. Nielson. *For Juniors and Seniors.* 3 lec. or rec.; 3 cr.

89-90. (XIII). Development of Sociological Thought. The history of the development of sociology from Plato to the present day. During the first semester, the emphasis is on the nineteenth century, with special reference to the writings of Comte, Spencer, and the European systems of thought. During the second semester, analysis is made of twentieth century sociological thought, with special reference to American sociology. For Seniors with permission of instructor. Mr. Moss. 3 lec. or rec.; 3 cr.

92. (0). Senior Seminar. A systhesis of materials encountered by Seniors in various specialized sociology courses chosen for their major. How contributions of demographers, social psychologists, anthropologists, and social philosophers complement each other. How basic generalized discoveries and techniques are developed, modified and applied in different specific fields. Classics in the literature of Sociology. The comprehensive examination required of majors in Sociology will be taken by members of the seminar during May. Mr. Bassett. *Required of Seniors majoring in Sociology.* Open to other students who will have completed 24 semester hours of credit in advanced Sociology courses by the end of their Senior Year. 3 lec. or rec.; 3 cr.

95, 96. (0). Social Research Seminar. A laboratory or field work course in which actual research, requested by a sponsor, is planned and carried out. Analysis of problems, choice of appropriate research methods, construction of instruments, coding, tabulation, quantitative analysis of data, and presentation of results are carried out by the seminar, organized as a research agency. Mr. Bassett. Prereq.: Soc. 75. 3 lab.; 3 cr.

97, 98. (0). Social Service Field Work. Designed to give to the student an understanding of social work through observation and participation. Lectures, reading, and conferences will be offered during the college year in co-operation with neighboring social agencies or during the summer by eight weeks' work with other accredited social work institutions. The Department will arrange for a limited number of student summer placements with well supervised settlements, correctional institutions, and case work agencies in urban centers. It is strongly recommended that students who can qualify should acquire this experience in the summer, following the Junior Year. In most cases agencies offer no remuneration beyond living expenses. Mr. Coulter. Prereq.: 12 credits of work in Sociology. 3 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

ZOOLOGY

George M. Moore, *Professor;* C. Floyd Jackson, *Professor;* Lorus J. Milne, *Associate Professor;* Edythe T. Richardson, *Associate Professor;* M. Jean Allen, *Assistant Professor;* Wilbur L. Bullock, *Assistant Professor;* Paul A. Holle, *Instructor;* Mildred B. Atkins, *Lecturer;* Philip A. St. John, *Laboratory Instructor;* Marcel E. Lavoie, *Laboratory Instructor.*

7. (XIX). General Zoology. Basic course for Zoology majors and pre-medical students. Systematic survey of the animal kingdom including consideration of the natural history and functional relationships. Accompanied by dissection in the laboratory of selected types. Mr. Moore. Prereq.: Biol. 2, or Zool. 48. 2 lec. or rec.; 2 lab.; 4 cr.

8. (XIX). Comparative Anatomy. Fundamental principles of comparative vertebrate anatomy. Selected vertebrate types dissected in the laboratory. Miss Allen. Prereq.: Zool. 7. 2 lec. or rec.; 2 lab.; 4 cr.

17. (XX). Human Anatomy. A study of the structure of the human body including gross and microscopical anatomy of the various systems. Collateral reading, written reports and conferences. Mrs. Richardson. Prereq.: Biol. 2. 3 lec.; 1 lab.; 4 cr.

18. (XX). Human Physiology. A study of the principles involved in the functioning and integration of the various systems of the body. Collateral reading, written reports, conferences. Mrs. Richardson. Prereq.: Zool. 17 or Zool. 8. 3 lec.; 3 cr.; with optional laboratory, 4 cr.

19. (XVIII). Kinesiology. A study of bodily movements. Special emphasis is given to the relation of skeleton, muscles, and joints in movement. Designed primarily for Occupational Therapy students and for students in the Physical Education Teacher Preparation curriculum. Mrs. Adkins. Prereq.: Zool. 17 and 18. 3 lec. or rec.; 3 cr.

35. (XX). MAMMALOGY. A study of the mammals, their identification, life history, and economic importance with special reference to those of eastern North America. Designed for students interested in wildlife conservation, for secondary-school teachers, and for other interested in mammalogy as a hobby. Mr. Jackson. Prereq.: Biol. 2 or its equivalent. 1 lec. 2 lab.; or field trips; 3 cr.

36. (XX). ORNITHOLOGY. A study of birds, their identification, migration, life history, and economic importance with special reference to those of eastern North America. Designed for students interested in wildlife conservation, for secondary-school teachers, and for others interested in bird study as a hobby. Mr. Jackson. Prereq.: Biol. 2 or equivalent. 1 lec.; 2 lab. or field trips; 3 cr.

(Expenses for field trips will be borne by students. Six- or seven-power prism binoculars are necessary field equipment. If the student does not have his own, he may rent binoculars from the University Bookstore at a cost not to exceed $10.00 for the session.)

48. (V). PRINCIPLES OF ZOOLOGY. The principles of animal biology, including embryology, physiology, and genetics, with emphasis on man and other vertebrates. A study of the relationship between living things and their environment. Mr. Holle. *Required of Freshmen in Agriculture.* 2 lec.; 1 lab.; 3 cr. *This course cannot be used to satisfy major requirements.*

ADVANCED COURSES IN ZOOLOGY

All the following courses require Junior or Senior standing.

51. (I). PARASITOLOGY. An introductory course concerned with some of the more important parasites causing diseases of man and animals. Living materials will be used as far as possible. Mr. Bullock. Prereq.: Biol. 2 and a year of Zoology. 2 lec.; 2 lab.; 4 cr.

56. (XIX). INVERTEBRATE ZOOLOGY. A survey of the major invertebrate groups, exclusive of insects, with emphasis on free-living forms. Evolution of various phyla and their ecological relationships. Mr. Moore. Prereq.: Zool. 7. 2 lec. 2 lab.; 4 cr. (Alternate years; not offered in 1951-1952.)

59. (IX). GENERAL PHYSIOLOGY. The chemical and physical nature of the living substance. The processes of metabolism, movement of materials, irritability, response. Lectures, assigned topics, and laboratory experiments. Mr. Milne. Prereq.: Biol. 2, one year of Zool., a year of college Physics and a course in Organic Chemistry. 3 lec. or rec.; 1 lab.; 4 cr.

61. (VIII). GENETICS. A study of the physical basis of inheritance, expression, and interaction of the hereditary units, linkage, and variation. The application of Mendelian principles to plant and animal breeding. Mrs. Richardson. Prereq.: Biol. 2, or Bot. 1 and Zool. 48. 3 lec. or rec.; 3 cr.

64. (VII). NEUROLOGY. Practical study of morphology, physiology, and histology of the human nervous system. Mrs. Richardson. Prereq.: Biol. 2 and one year of Zoology. 3 lec. or rec.; 1 lab.; 4 cr.

65. (XIX) EMBRYOLOGY A study of the fundamental principles of development. The developmental process from the egg to the formation of the body

and the establishment of the principal organs and systems. Miss Allen. Prereq.: Zool. 8. 2 lec.; 2 lab.; 4 cr.

66. (I). Elements of Histology and Microtechnique. A study of the microscopic anatomy of principal tissues and organs of vertebrates with an introduction to general histological technique. Mr. Bullock. Prereq.: Zool. 8 or 17. 2 lec.; 2 lab.; 4 cr.

71, 72. (XIII). Ecology of the Vertebrates. A study of the habitat and ecological relationship of the vertebrates with special reference to their conservation. Field methods and techniques as applied to the study of these groups will be considered. Mr. Jackson. Prereq.: 12 hours of Biology. 2 lec.; 2 lab.; 4 cr. (Alternate years; not offered in 1951-1952.)

73. (XIII). Ichthyology. A study of fishes; their identification, habits, habitats, economic importance, life histories with special reference to those forms occuring in eastern North America. Designed for students interested in wildlife conservation and those preparing to become aquatic biologists. Mr. Jackson. Prereq.: Biol. 1-2, and 8 hours of Zoology. 2 lec.; 2 lab.; 4 cr. (Alternate years; offered in 1951-1952.)

74. (XIII). Herpetology. A study of the reptiles and amphibia; their identification, habits, habitats, life histories with special reference to those forms occurring in eastern North America. Designed for students interested in wildlife conservation. Mr. Jackson. Prereq.: Biol. 2 and 8 hours of Zool. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-1952.)

87, 88 (0). Zoology Seminar. Seminar discussions on current Zoological literature conducted each week. Primarily for Seniors majoring in Zoology and for Graduate Students. May be elected by permission of the Chairman of the Department. Mr. Moore and staff. 1 hour per week; 1 cr.

96. (IX). Limnology. Factors affecting biological productivity of freshwater lakes and streams. Adapted primarily for students interested in fish and game management, wild life conservation, and in teaching of Biology. Mr. Moore. Prereq.: Permission of the instructor. 2 lec.; 1 lab.; 3 cr. (Alternate years; offered in 1951-1952.)

97, 98. (0). Special Problems. Advanced students may elect a special problem provided they present a detailed outline of the subject and can furnish adequate proof of their ability to carry it out with equipment available. Mr. Moore and members of the staff. Prereq.: Permission of the Chairman of the Department. 1-4 cr.

FOR COURSES PRIMARILY FOR GRADUATE STUDENTS SEE CATALOGUE OF THE GRADUATE SCHOOL

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